

Water Quality Temperature Criteria Guidance

Collected Comments

(Comments submitted from
October 10 to November 26, 2002)

Part II – Environmental Groups and Municipalities

U.S. Environmental Protection Agency
Region 10 – Pacific Northwest

December 2002

Environmental Group Comments

BRENT FOSTER
ATTORNEY AT LAW
2021 SE 44TH AVE
PORTLAND, OR 97215
(503) 238-1241
brentfoster@ecoisp.com

John Palmer, EPA Region 10
(mail code OW-135)
1200 Sixth Avenue
Seattle WA 98101
(206) 553-6521

November 26, 2002

RE: Comments on Second Draft EPA Region 10 Guidance For Pacific Northwest State
and Tribal Temperature Water Quality Standards

Dear Mr. Palmer,

I am writing on behalf of Columbia Riverkeeper and Willamette Riverkeeper to comment on EPA's proposed temperature guidance for Northwest States and Tribes. While we believe the proposed guidelines are an improvement over the previously proposed guidelines in that they do not rely on the "thermal potential" system previously proposed, we strongly object to the proposed numeric standards in the new guidance since there is no good evidence to suggest that they will be protective of salmon. Additionally, we continue to have a number of the same concerns with this second proposed guidance that we did with the first, but have attempted to minimize duplication with our previous comments.

1. General Concerns

We are concerned about the practical difficulties in implementing standards based on the adoption of seasonal standards described on page 17 of the proposed guidance. We are concerned that States lack sufficient data about the timing of specific salmon life stages to develop such time-specific standards and that States will attempt to narrowly define the time periods in which a given salmon activity occurs, such as spawning. EPA should emphasize in its guidance that any seasonal standard should ensure protection of existing uses during not just the entire period where such uses are currently present, but additionally during the times such uses were present as of 1975 per the requirements of 40 C.F.R. § 131.3.

On page 17 of the guidance EPA described the relationship of elevated temperatures on salmonids stating, "Exposure to temperatures above this optimal range

results in increased severity of sub-lethal adverse effects as temperatures rise until at some point they become lethal.” It is also important to recognize, however, that salmonids exposed to elevated temperatures where sub-lethal effects are present are likely much more susceptible to stochastic events such as unusually significant disease outbreaks, rapid reductions in food supply or other similar events. The recognition that a salmonid population exposed to above-optimum temperatures is less resilient and more likely to suffer the effects of disturbance events than populations exposed to optimum temperatures should be added to EPA’s finding that, “adverse effects are minimized as long as temperatures remain within the bounds of the optimal temperature range.” Guidance at 17.

We are also concerned that the use of the 7 Day Average of the Daily Maximum (7DADM) Unit of Measurement would not ensure protection against acutely lethal temperature spikes that may occur for a limited number of days during the hottest temperatures with potentially serious effects on salmonids. The standard may be “oriented to” maximum daily temperatures, but it is clearly an average of multiple days that has the effect of masking the importance of maximum water temperatures on any given day.

Question 1- On what basis would salmonids be protected under a 7DADM standard if that standard allowed spikes in temperatures that exceeded the upper incident lethal temperatures for a given species and life stage?

From a practical perspective, the 7DADM also would make surveys to identify water quality limited streams significantly more costly and time intensive since it would require at least seven days of continuous monitoring to determine if the standard was even being violated.

Question 2- Has EPA considered the increased surveying costs and burden that this standard would create? Does EPA believe this burden would be significant or minor?

We also object to the proposal for proposed temperature criteria to apply to “all but unusually warm conditions.” Guidelines at 19. It is in unusually warm conditions that salmon are at the greatest risk of impacts from adverse temperature effects and when a protective standard for salmon is the most important. While the guidance does not make clear how this loophole would work, there is no basis in the CWA for such a loophole and one should not be adopted as EPA guidance.

We agree with EPA’s recognition that numeric criteria should apply upstream of a use that are sufficient to protect the downstream use given the effects of gravity.

EPA’s temperature guidance should be modified to reflect the CWA requirement that standards be protective of salmonids in all areas where salmonid use occurred as of November 1975. 40 C.F.R. § 131.3. Failure to require the protection of salmon in these areas would not protect “existing uses” as that term is defined by CWA regulations and is

contrary to the goal of salmonid restoration. EPA is correct to recommend protection of salmonids where “there is reasonable potential for that use to occur if temperatures were to be restored in areas of degraded habitat,” but this cannot supplement the need to protect areas where salmonid use occurred as of November 1975.

While EPA is right to recognize that “fish distribution information may be incomplete and that there are waters where use likely currently occurs but it is not documented,” this dramatically understates the true lack of accurate and current data states have on actual salmonid use. EPA guidance should reflect that in many if not most cases, if states are seeking to apply narrow seasonal standards to protect a given use this could require multiple years in-field surveys unless accurate, representative and current data was already available.

In proposing a numeric standard near the outside limit of optimal temperatures, EPA’s guidance assumed that, “[a]dopting a numeric criterion near the warmer end of the optimal range that is applied to the above conditions (near worst case) will result in temperatures near the middle of the optimal range most of the time where most of the use occurs.” Guidance at 21. It is a lot more likely, however, that States would see compliance with the more permissive upper limit standard most the time as being “good enough” and be less concerned with achieving compliance during the warmest/driest months.

2. Numeric Standards

The numeric standards EPA is proposing are a clear recipe for the orderly and knowing extinction of salmon. The proposed numeric criteria are not supported by the most credible scientific studies that exist on the effects of temperature on salmonids (such as the EPA/CRITFC study) and are not even consistent with the effects data EPA provides in the guidance document itself. The numeric standards may satisfy the political needs of the preserving the status quo, but there is no reason to expect that they will support recovery of viable salmon populations or meet the basic requirements of the CWA.

The guidance document, for example, acknowledges that while rearing juvenile salmon suffer disease increases that are “severe” in waters of 18 °C to 20 °C, that salmon smoltification was impaired at 15 °C and above, and that elevated disease levels occurred at temperatures above 14 °C. As if the studies referenced did not even exist, however, EPA then goes on to propose a numeric criteria of 18 °C for non-core salmon and trout rearing!

Question 3- How is the recognition of “severe” increased disease rates in temperatures of 18 °C consistent with EPA’s proposal to adopt a 18 °C temperature standard for salmon rearing?

Question 4- Does EPA acknowledge that salmon are and will be present in non-core areas? If so, how would the proposed 18 ° standard be protective?

The numeric criteria for what EPA refers to as “Core” juvenile rearing areas is an improvement over the standard for non-core areas. However, this does not change the fact the CWA and its implementing regulations do not allow the adoption of criteria for areas of juvenile rearing determined to be non-core areas that will not protect any salmon use that is occurring or has occurred since 1975 in those areas.

The CWA’s implementing regulations specify that “*Existing uses* are those uses actually attained in the water body on or after November 28, 1975, whether or not they are included in the water quality standards.” 40 C.F.R. § 131.3. If salmonids used a given water body any time after November 28, 1975 then salmonid use is an existing use that must be included as a designated use irrespective of the arbitrary determination of whether “there is a reasonable potential for that use to exist.” 40 C.F.R. § 131.10(h)(1).

Question 5- Does EPA agree that under the CWA states must designate salmon as a beneficial use in areas where salmonid use was occurring as of November of 1975? If not, why not?

The draft guidelines statement that salmonids use should be listed as a designated use where “there is a reasonable potential for that use to exist.”

Question 6- In determining whether there is a reasonable potential for salmonid use to exist, are states supposed to make this determination based on existing water quality conditions or based on the potential to improve water quality through regulatory mechanisms? If the later, would this include consideration of state measures that could address nonpoint source pollution, as well as, point source measures?

The proposed standard of 20 °C for salmon and trout migration on lower mainstem rivers is also without scientific support as even EPA’s own guidance documents seems to acknowledge. EPA states that this standard, which clearly and by EPA’s own data significantly exceeds temperatures that salmonids require to avoid severe disease impacts and related mortality, is for areas that the “best available scientific information demonstrates that maximum temperatures likely reached 20°C prior to significant human alteration of the landscape.” There is little basis for believing that historic water temperatures regularly exceeded 20 ° C as they do today and even less to support that managing the lower and mid Columbia and Willamette Rivers for the 20 ° C standard will protect salmon.

Question 7- What is the nature of this information and what is EPA’s confidence in its accuracy? Was the data taken after industrialization of the river banks, deforestation and significant grazing had begun?

EPA's assumption that the 20 °C standard will somehow be protective of salmon in light of the narrative criteria to protect cold-water refugia is a pure fiction that provides a thin veil over the reality that what EPA is proposing will ensure that salmonids do not recover in the Columbia and Willamette Basins. We have no doubt that cold-water refugia are important to salmon, but it is nothing but wishful thinking for EPA to believe these refugia will somehow be restored in the near future so as to facilitate salmon recovery in waters managed for a 20° C temperature standard.

EPA's statement that "some altered rivers, such as the Columbia and Snake, experience similar summer maximum temperatures today as they did historically," seems to grossly blush over the key considerations of the frequency and duration of such maximum temperatures. Guidance at 26.

While the premise that salmon would be protected in waters managed for a 20 °C standard is questionable enough even were significant and yet to be identified cold-water refugia provided for, EPA's regulation appears to even give states the wiggle room to maneuver out of the refugia requirement by stating, "Therefore, in order for 20°C 7DADM to be protective of migrating salmon and trout, there must also be cold water refugia, to the extent that is if feasible, so they can migrate through these waters with minimal thermal stress."

Question 8- When EPA uses the phrase "to the extent feasible" in this sentence does it mean that salmon might still be protected in 20 ° C 7DADM waters if providing cold-water refugia is not feasible?

Question 9- What does EPA see as the practical effect of the narrative standard to protect cold water refugia?

Question 10- Assuming EPA acknowledges that there is a lack of such refugia in places like the lower Columbia River, what would states have to do to adopt the 20 °C standard? Would they just have to adopt the narrative standard that says "protect cold-water refugia," or would the state have to actively work to restore such refugia?

Question 11- What does EPA estimate is the frequency, quality and abundance of cold-water refugia at present in rivers like the lower Columbia? What frequency, quality and abundance of cold-water refugia would be necessary to protect salmon if waters were managed for a 20 ° temperature standard?

Oregon DEQ already has water quality standards related to the protection of cold-water refugia (OAR 340-041-0205(2)(b)(A)(v)) but after reviewing countless NPDES permits I have never once seen DEQ require any study or evaluation to document whether cold-water refugia are even present, let alone to consider whether they would be adversely affected. As a result, it is difficult not to wonder what basis EPA has for believing that a narrative criteria to protect cold-water refugia would have any practical beneficial effect on salmon.

Question 12- How does EPA characterize state efforts to protect cold-water refugia to date and does EPA have any indication that there is a significant new interest by states to protect such refugia?

Again, we do recognize the potential importance of cold-water refugia especially given the currently elevated temperature levels and we strongly support greater appreciation of the importance of functioning alluvial systems, but the expectation of some new bursts of cold ground water from what we know are already over tapped aquifers, or other similarly unrealistic measures, do not seem realistic enough to justify the proposed 20 °C standard.

3. Mixing zone provisions

We object to the proposed guidance on mixing zone regulations because they give the impressions that mixing zones can be issued as a matter of course. There is no clear authority for mixing zones in the CWA and the cumulative total of areas designated as mixing zones represent a significant loss of waters where beneficial uses, including fishing and swimming, must be met.

The proposed guidance states that, “EPA’s judgment about the appropriateness of the mixing zone policy is based on whether there are sufficient limitations on mixing zones to protect the designated use of the water body as a whole.” Guidance at 28 (emphasis added).

Question 13- What statutory authority does EPA rely on in its assumption that the plain language of the CWA allows states to carve areas out of water bodies that do not have to protect existing or designated uses and effectively designated these areas as zone of toxicity where water quality standards need not be met?

The proposed guidance for mixing zones also ignores consideration of the fact that mixing zones most frequently contain a host of multiple toxic pollutants of which heat is only one. EPA should revise the proposed criteria to require that any mixing zone provisions account for the synergistic and cumulative adverse affects that could affect salmonids and other species as a result of mixing zones.

Question 14- Does EPA recognize the potential synergistic and cumulative effects of toxics and high temperature water? If so, on what basis can EPA’s mixing zone guidance completely ignore this issue?

4. Conclusion

For the reasons above we do not support the proposed guidance and request that EPA revise this proposal again so that it will accurately reflect what the best science

shows is necessary to protect salmons and be consistent with the requirements of the CWA, the ESA and the protection of tribal fishing rights.

Sincerely,

Brent Foster
Attorney for Columbia and
Willamette Riverkeeper

Tuesday, November 26, 2002

John Palmer
Environmental Protection Agency, Region 10
1200 6th Ave.
Seattle, WA 98101

Comments on the 2nd PUBLIC REVIEW DRAFT EPA Region 10 Guidance for State and Tribal Water Quality Standards

Dear Mr. Palmer;

Thank you very much for the opportunity to provide comments on the 2ND PUBLIC REVIEW DRAFT EPA Region 10 Guidance for State and Tribal Water Quality Standards. The Idaho Conservation League has a long history of involvement in water quality issues. As Idaho's largest statewide conservation organization we represent members from around the state -- many of whom have deep personal interest in protecting and restoring the health of Idaho's rivers, streams and lakes.

We appreciate the work that your office has done to address our concerns stated following the original draft. The added sections on how water temperatures affect salmonids and the information in Tables 1 and 2 are particularly helpful. Unfortunately, our concerns have not been adequately addressed and we still have serious reservations about the propositions outlined in the new draft. As a result, we still object to EPA moving forward with this proposal. Our specific comments are attached to this cover letter.

Thank you for your consideration. We look forward to reviewing the final guidance.

Sincerely,

John Robison
Conservation Assistant
Idaho Conservation League

Comments on the 2nd PUBLIC DRAFT EPA Region 10 Guidance for State and Tribal Water Quality Standards

IV.2 Human Activities That Can Contribute to Excess Warming of Rivers and Streams

The draft neglects to mention or address the impacts of global warming on salmonids. A recent report of the Accelerated Climate Prediction Initiative Pilot warned that over the next five decades snowpack in the Columbia River basin may decrease 30% which would shift the peak runoff forward one month and decrease overall runoff. This reduction in summer flows will further increase stream temperatures. The research that the EPA has already conducted regarding global warming and fisheries should be applied in this document.

V.1 Cold Water Salmonid Uses

Thank you for compiling the information in Tables 1 and 2 and for providing details on how human-caused elevated water temperatures affect general life histories.

General Target for Protective Criteria

The EPA selected targets which are “near the warm end” of optimum temperature ranges. Criteria should be based within the center of optimum temperature ranges and leave a margin for error. Selecting criteria that are outside optimum temperature ranges is simply unacceptable. The purpose of this guidance is to recommend biologically defensible temperature ranges and not expect individuals to occupy sub-optimal habitat. We do not believe that the targets chosen are consistent with the Clean Water Act requirements or are adequate to protect designated uses.

The EPA’s draft guidance is clearly geared toward the assumption that the anthropogenic sources of thermal change will all cause the water temperatures to *increase*. While this is the correct assumption in most instances, it is not always correct. For example, the US Army Corps of Engineers is currently constructing temperature control structures at Cougar Reservoir on the McKenzie River in Oregon in an attempt to mitigate for dam flows that are *too cold*. The EPA needs to take care that this guidance includes these sorts of scenarios.

Failure to provide guidance for protection of water quality in areas inhabited by warm water species

It is not clear to us why your recommendations are limited to cold water salmonids. There are many areas in Idaho that do not support salmonids but do support “warm water species”. While these warm water species are capable of withstanding water temperatures far in excess of salmonids, these species are still vulnerable to human induced temperature changes.

The Clean Water Act applies to all waters in the United States – not simply those waters that are inhabited by indigenous salmonids. The EPA needs to offer guidance with regard to protecting the water quality in areas inhabited by warm water species. This is

required because there are many areas in Idaho that do not support the few salmonids on which you have provided guidance. Failure to expand the list of species for which EPA is providing guidance will greatly limit the geographical scope and practical usefulness of this guidance.

Failure to provide guidance for protection of water quality in areas inhabited by non-salmonid cold water fish species.

It is not clear to us why your cold water recommendations are limited to salmonids. There are many areas in Idaho that do not support salmonids but do support other cold water species.

The Clean Water Act applies to all waters in the United States – not simply those waters that are inhabited by indigenous salmonids. The EPA needs to offer guidance with regard to protecting the water quality in areas inhabited non-salmonid cold water fish species (ex. burbot, whitefish, sculpin, etc.). This is required because there are many areas in Idaho that do not support the few salmonids on which you have provided guidance. Failure to expand the list of species for which EPA is providing guidance will greatly limit the geographical scope and practical usefulness of this guidance.

Failure to provide guidance for protection of water quality in areas inhabited by non-indigenous salmonids.

The Clean Water Act applies to all waters in the United States – not simply those waters that are inhabited by indigenous salmonids. The EPA needs to offer guidance with regard to protecting the water quality in areas inhabited by non-indigenous salmonids. For example, guidance regarding temperature recommendations and species-life-stage numerical criteria need to be provided for brook trout, lake trout, rainbow trout, etc. This is required because there are many areas in Idaho that do not support the few salmonids on which you have provided guidance. Failure to expand the list of species for which EPA is providing guidance will greatly limit the geographical scope and practical usefulness of this guidance.

Use of 7DADM as Numeric Criteria

Short-term temperature spikes that still harm fish may not be detected by the 7 DADM Unit of Measurement. As such, the numeric criteria based on this should include a margin of error.

Criteria Apply to All but Unusually Warm Conditions

The exemption for hot air temperatures does not take into account the predicted effects of global warming. Even if these exemptions are allowable in only 1 of 10 years, the overall average may rise above recommended levels.

Current versus Potential Use

The Clean Water Act needs to be applied to entire aquatic ecosystems, not simply the areas where there is “reasonable potential for use” by salmonids.

Salmonid Uses During the Summer Maximum Conditions

Throughout the recommended maximum temperatures, the EPA has selected conditions in the upper margins for optimal growth. As stated before, this methodology leaves no margin for error in the case of threatened and endangered populations.

Bull Trout Juvenile Rearing

The 7DADM criteria of 12°C is above the optimal temperature range and places bull trout at a competitive disadvantage.

Salmon/Trout “Core” Juvenile Rearing

The 7DADM criteria of 16°C is above the optimal temperature range of 10-16°C and places the fish within the potential for elevated diseases.

Salmon/Trout Juvenile Rearing and Juvenile/Adult Migration

The 7DADM criteria of 18°C is too high because overall reduction in migratory fitness occurs above 17°C. Impairment to smoltification can occur between 12°C and 15°C and the potential for severe disease occurs at 18°C.

The guidance acknowledges that conditions would be slightly warmer than optimal during summer maximum conditions, contradicting an earlier statement about summer maximum standards. The guidance previously stated on page 17 that “it is appropriate that temperature criteria focus on the summer maximum conditions to protect the cold water salmonid uses that occur then... [W]e assume that providing protective temperatures during the summer maximum period will in many areas provide protective temperatures for more temperature sensitive uses that occur in the spring-early summer and late summer-fall.”

In addition, the EPA applies these standards to “many river basins in the Pacific Northwest,” implying that some river basins will be exempt from recommended criteria.

Salmon/Trout Migration on Lower Mainstem Rivers

The guidance of 20°C 7DADM is unacceptably high, reducing swimming performance and overall reduction in migratory fitness. Cold water refugia are defined as waters 2-3°C cooler than the main channel river temperature, placing the refugia at 17°C to 18°C, a temperature with severe disease potential and overall reduction in migratory fitness. The guidance states that cold water refugia are a “critical element” for the 20°C 7DADM to be protective but does not define “to the extent that it is feasible” to restore or maintain these refugia.

The cold water refugia narrative provision does not contain details on the size or spacing of refugia and thus does not allow enough margin for error. Alluvial floodplains, one of the primary sources for cold water refugia, are not currently functioning in many areas.

Cold water refugia must be sufficiently connected both -- spatially and temporally -- to other cold water refugia to ensure that fish can move between refugia. Refugia must be

located close enough together that species can move between refugia. EPA must take care to ensure that specified cold water refugia, or reaches, which may be physically close together are not in fact separated by physical barriers to fish movement. Physical barriers would preclude free movement even when water temperatures would allow movement.

There must be significant periods of time throughout the year that the refugia area actually connected to each other via corridors of cold water. If areas of warm water permanently separate the refugia there will be no exchange between refugia. EPA must ensure that the periods of time during which water temperatures are too warm to allow inter-refugia migration are limited in duration and compatible with the needs of the species.

There is no discussion of the biological needs – beyond temperature -- of the various salmonid species. We have concerns that the EPA's proposal to allow cold water refugia separated by areas of warmer water will limit and/or alter the total biotic mass and diversity of the river (or lake) system. This, in turn, will limit the food available to salmonids.

We are concerned that small refugia crowded with salmonids will not be able to provide sufficient food for the salmonids. Salmonids are very high in the food chain and require a large, functioning aquatic system to provide them with sufficient food. As a result, the refugia, though cool enough, will not be able to support sustainable populations of salmonids.

The EPA needs to develop some means of quantifying the salmonid carrying capacity of the refugia and ensuring that this is consistent with a population large enough to be self-sustaining. Refugia size should be expanded to ensure that it supports a self-sustaining population of the target salmonid species.

The guidance states that this extreme criterion may “possibly” apply to the lower reaches large mainstem rivers other than the Columbia and lower Snake, implying that temperatures may be higher elsewhere.

Bull Trout Spawning

The 9°C 7DADM is well above the optimum egg incubation temperatures of 2°C and 6°C.

Salmon/Trout Spawning, Egg Incubation, and Fry Emergence

Reduced viability of gametes occurs at 13°C, the same temperature selected for the 7DADM criteria. According to Table 1, the temperature range should be 6°C-10°C.

Steelhead Smoltification

The 7DADM of 14°C potentially places steelheads in a temperature range where smoltification is impaired.

Criteria for Egg Incubation

Regarding the temperature limits for spawning, incubation and juvenile rearing for cold water guild -- EPA has failed to propose appropriate temperature limits. The August 2001 paper by EPA's Water Temperature Criteria Work Group entitled "Technical Synthesis – Scientific issues related to temperature criteria for salmon, trout, and char native to the Pacific Northwest clearly states that the optimal egg incubation temperature for anadromous salmon is 6-10 degrees C. EPA's guidance for temperature limits for anadromous salmon egg incubation provides for a seven day average temperature not to exceed 13 °C. This fails to provide sufficient guidance regarding the need to maintain water at 6-10 degrees C. Indeed, a Maximum 7 DADM of 13 virtually assures that the optimal temperature, even the "upper range" of the optimal temperature, is never met. This error needs to be corrected.

Criteria for Adult Migration

Regarding the temperature limits for adult migration for cold water guild, the EPA notes that "Temperatures above 13°C have also been associated with significant losses in eggs even while still retained unfertilized in the body cavity of female fish..." This fact is counter to the guidance that EPA provides in the temperature limits for adult migration of cold water salmonids. The Idaho Conservation League argues that the temperature limit for the adult migration life stage should be set to protect the eggs inside of migrating adult females. As such, EPA needs to revamp its guidance. The Idaho Conservation League recommends that the adult migration limit be set at 12°C-14°C.

Criteria for Adult Habitation

The EPA has failed to provide temperature guidance for adult habitation. This oversight needs to be corrected because the moderately cold water guild includes resident species and water of the appropriate temperature needs to be provided for areas that do not support spawning and juvenile rearing but do support resident adult habitation.

V.2. Adoption of Regulatory Provisions to Protect Existing Water Temperature that is Colder than the Numeric Criteria

The Idaho Conservation League approves of the intent to protect existing high quality habitat.

Adoption of Mixing Zone Provisions to Protect Salmonids

Thank you for clarifying the maximum cross-sectional area at or above 21°C at 25% of the stream width. Mixing zones should be prohibited in active spawning and incubation areas.

Approaches to Address Situations Where EPA's Recommended Numeric Criteria Are Inappropriate or Unachievable

The Idaho Conservation League opposes EPA's assertion and guidance that it is acceptable for certain (significant) portions of rivers, streams and lakes to fail to support entire suites of species. The Clean Water Act needs to be applied to entire aquatic

ecosystems, not simply the areas where there is “reasonable potential for use” by salmonids.

The requirement of a EPA approval through a Water Quality Standard, TMDL, or 303(d) list approval is an awkward way to address this situation. TMDL implementation has been delayed and inconsistent in the State of Idaho.

John Palmer
EPA Region 10
1200 6th Avenue
Seattle, WA 98101

November 26, 2002

Dear Mr. Palmer:

The following comments concern the second draft of the Regional Water Temperature Guidance to states and tribes.

Compliance with the CWA:

The following sentences from the first paragraph in the section titled "Current versus potential use", page 20 includes the following sentences. "EPA regulations require that, as a minimum, States and Tribes protect uses that have existed since 1975. See 40 CFR 131.3(e) & 131.10(h)(1)."

The introduction, page one, included the following sentence. "However, States and Tribes that adopt temperature WQS consistent with this guidance can expect an expedited review by EPA and the Services. On page one it is also indicated the guidance document is not a regulation.

It is clear that States have not protected uses that pertain to fisheries that were in existence since 1975, in violation of the CWA. The draft guidance does not describe the enforcement mechanisms of the CWA that would ensure fully compliance with the CWA when States adopt temperature WQS consistent with the guidance.

The Final guidance should include language that would indicate the procedures that would be used by EPA to ensure compliance with the CWA when a State adopts temperature WQS.

Sincerely,

Mike Mihelich Forest Watch Coordinator
Kootenai Environmental Alliance
P.O. Box 1598
Coeur d'Alene, ID 83816-1598

November 26, 2002

John Palmer
Region X
U.S. Environmental Protection Agency
1200 Sixth Ave.
Seattle, WA 98101

Re: **Draft EPA Region X Guidance for Pacific Northwest State and Tribal Temperature Water Quality Standards, 2nd Public Review Draft**

Dear John:

Thank you for the opportunity to comment on the 2nd Public Review Draft of the Region X Guidance for Pacific Northwest State and Tribal Temperature Water Quality Standards. The paragraph references below correspond to the order of paragraphs in each section or subsection, not the page on which they are found.

I. Introduction

Page 1, Para 1: The guidance states that it protects all the cold water species in the region. However, since some species require colder water than the other species, is it fair to make such a statement? For this reason, EPA should consider requiring colder water for those species that warrant it.

Page 1, Para 2: We agree that neither EPA nor the Services can bind themselves to approving a State or Tribal submission that “conforms” to the guidance. At the very least, each state has various policies in their rules and standards that have the potential to override or otherwise negate numeric and narrative criteria, making any advance statements about whether the submission is approvable inappropriate. In addition, in order for EPA to approve criteria it must also know where and when those criteria will be applied for the protection of beneficial uses, both through use designations and an antidegradation implementation policy for the protection of existing uses. In the alternative, a state could include a statement in its rules that until such use designations for more protective life cycle stages are developed, the state will apply the most protective numeric criteria across the board wherever any life cycle stage of the species is present.

Page 1, Para 3: We agree that EPA must make a finding that a submitted standard is consistent with both the CWA and the ESA. However, this statement begs the question of what it means for a standard to be consistent with either one of these laws. In particular, the threatened or endangered status of a species should result in a reduction of acceptable risks that are inherent in the numeric criteria established. The Guidance should make a statement to that effect, rather than giving the impression to States and Tribes that species on the verge of extinction can be treated as capable of sustaining the

same risk levels as

healthy, plentiful populations. Moreover, compliance with the ESA can be interpreted to mean, on the one hand, no take, or on the other, restoration. EPA should use this guidance to tell the states that the standard for its review of future submissions of water quality standards will be the latter.

II. Regulatory Background

Page 2, Para 1: We agree with EPA's statement that "Federal WQS regulations require States and Tribes to adopt a statewide antidegradation policy and methods to implement such policy." However, states have not done this. Because antidegradation is the sole means for assuring the protection of existing uses dating to November 28, 1975 that have not also been designated, EPA should require that any submission of revised temperature standards include both the time and place use designations mentioned above (to ensure at a minimum protection of the existing uses) as well as the antidegradation implementation methods. Such methods must be in formal rules, not state guidance, and they must apply to all waters and all sources, not just point sources. Otherwise, they are inconsistent with the definition of water quality standards and will be wholly ineffective at achieving the goal of maintaining the nation's waters. EPA can and should use this guidance to signal to states that its laissez faire attitude about antidegradation policies and implementation has come to an end.

Page 2, Para 4: We concur that EPA has a trust responsibility to the region's Tribes. However, nothing in this guidance elaborates on what EPA means when it says that its approval action must take this into account. Either EPA intends to use an element of surprise when it obtains a submission and subjects it to review or it intends to ignore the responsibility it has conceded that it has. Either approach is poor and would make a mockery of EPA having raised the issue in its guidance. The guidance should be rewritten to include some specific ways in which EPA intends to give credibility to its responsibilities or state that it does not believe these responsibilities require any additional action beyond that which it attributes to the CWA and the ESA.

III. Relationship of Guidance to EPA's 304(a) Criteria for Water Temperature

Page 3, Para 1: We agree that EPA needs to approve the designated uses adopted by a state to ensure they are consistent with the CWA. If the proposed criteria are submitted with no life cycle stage time and place use designations, the standards must be rejected by EPA. Please see discussion above regarding Page 1, Para 2.

Page 3, Para 2: We strongly agree with the observations EPA makes in this paragraph. From our experience it remains a commonly-held fallacy that states need only adopt EPA's

recommended criteria in order to comply with the CWA.

Page 4, Para 4: We are pleased to see EPA make reference to the variety of chronic and sub-lethal effects of temperature on salmonids. What EPA fails to account for, however, is the synergistic effect of multiple pollutants, such as temperature and conventional parameters such as dissolved oxygen, and temperature and toxics. Increased temperatures enhance the adverse effects of other parameters on the beneficial uses, particularly salmonids. Increased water temperature increases bacteria levels. Concurrent violations of temperature and dissolved oxygen standards cause increased risk to beneficial uses. Oregon Department of Environmental Quality, Final Issue Paper on Dissolved Oxygen, Appendix A-6, June 1995. Temperature also affects the uptake of toxic contaminants by uses because elevated temperatures decrease available DO in the water column. In addition, the biological demands on aquatic species increase with increasing temperatures. At lower DO levels, the amount of oxygen delivered to fish tissue decreases, restricting the ability of fish to maximize metabolic performance. *Id.* Low DO levels increase the acute toxicity of various toxicants such as metals and ammonia. *Id.* Low DO levels may compound the adverse effects of some toxicants. Alternatively, toxicants may increase sensitivity to low levels of DO. For example, the Department has provided an example of where a toxicant that damages the gill epithelium can decrease the efficiency of oxygen uptake. Also, several toxic contaminants increase oxygen consumption due to interferences with oxidative phosphorylation of pentachlorophenol and have the potential to increase sensitivity to low DO. *Id.*

EPA has concurred that adverse impacts of toxicants may be compounded by low DO levels or may increase sensitivity to low DO levels. U.S. EPA, Biological Assessment of the Revised Oregon Water Quality Standards for Dissolved Oxygen, Temperature, and pH, September, 1998, at 63. EPA identified three mechanisms by which low DO and a toxicant in combination cause effects: 1) Increase gill ventilation associated with low DO can increase uptake of waterborne toxics, 2) Any toxic contaminant that damages the gill epithelium and decreases efficiency of oxygen uptake will increase sensitivity to low DO, and 3) a number of toxics, such as pentachlorophenol, increase oxygen consumption due to interference with oxidative phosphorylation. *Id.* Therefore, when elevated temperatures cause depleted oxygen levels, there are additive impacts with toxic contaminants. Given the vulnerability of threatened and endangered salmonid populations, such synergistic effects should not be ignored.

IV. Water Temperature and Salmonids

IV.1 Importance of Temperature for Salmonids

Page 4, Para 3: The short reference to the effect of temperatures on postponing upstream salmon migrations requires more elaboration. It should discuss the effect of holding on

successful migration and spawning. Equally important, the remainder of the guidance should address this issue from a policy perspective.

IV.2 Human Activities That Can Contribute to Excess Warming of Rivers and Streams

Page 6, Para 2: Given EPA's acknowledgment that some human actions can cause excessively cold water, at the very least the guidance should instruct States and Tribes to include a narrative criterion preventing water that is cold enough to cause the beneficial uses to be shocked or otherwise impaired.

IV.4 General Life Histories of Salmonids and When Human-Caused Elevated Water Temperatures May Be a Problem

See comment regarding section IV.1, Page 4, Para 3, above.

V. EPA Region 10 Recommendations for Pacific Northwest State and Tribal Temperature WQS to Facilitate Expedited CWA and ESA Review

Page 14, Para 1: Given the range of differences in existing standards, policies, and rules of the different entities requesting approval of proposed new temperature standards, EPA should not be promising "expedited review" to any State or Tribe.

V.1 Cold Water Salmonid Uses and Numeric Criteria to Protect These Uses

Cold Water Salmonid Uses

Page 16, Para 1: We agree with EPA's characterization of the agency's regulations regarding use designations. What EPA fails to state in this proposed guidance is that if States or Tribes do not choose to establish sub-categories of uses but do choose to adopt criteria to protect more sensitive life cycle stages, the more sensitive criteria must be applied to all the use designations apply, regardless of life cycle stage. In other words, not only can a State not adopt more stringent criteria without a concomitant time and place of application, it also must apply those more stringent criteria wherever the overall use designation exists. Therefore, the salmonid spawning criterion would apply wherever the salmonid use was designated. If a State or Tribe does not want to adopt the life cycle stage use designations, it must adopt a single criterion that protects all of those life cycle stages, i.e. the spawning criterion. EPA cannot sanction the adoption of criterion that have no real world applicability (i.e., criterion that apply to no place or time in the rules).

Focus on Summer Maximum Conditions

Page 17, Para 2: We strongly support EPA's recommendation that criteria are adopted to address spring-early summer and late summer-fall times. In addition, we note again that the time of the use designations is essential for the criteria to be applied. Moreover, EPA should provide instruction to States and Tribes about the times required. It is not sufficient for States and Tribes to rely on current timing, for example when migration runs have been moved later in the year because of high late summer-fall temperatures. This restriction on the timing of migrations is not natural and has a negative impact on the species.

General Target for Protective Criteria

Page 17, Para 2: EPA's rationale for setting criteria at the upper end of optimal temperatures is flawed, considering that real conditions are generally less ideal than laboratory conditions and the populations are at serious risk. For the 18°C criterion, EPA relies upon the fact that some individuals will always occupy less than optimal conditions. This is true but it does not account for the actual location of the 18°C zones by the States. The rationale for the 20°C criterion is different, relying upon the existence of cold water refugia. In developing this approach to mainstem river segments, EPA has not considered the implications for current application of the criteria. Presumably, for purposes of assessing compliance with the standards the guidance means that if there are no (or insufficient) cold water refugia in a segment, the 20°C criterion will be deemed not met. The guidance should state whether a State or Tribe could then make a determination in developing its §303(d)(1) list of impaired waters that there were sufficient cold water refugia or if only a TMDL that included developing them would suffice.

Numeric Criteria Apply Upstream of the Furthest Downstream Extent of Use

Page 20, Para 2: The Guidance states that EPA believes numeric criteria should apply upstream of actual uses because upstream waters contribute thermal loads. We agree. The problem is that EPA does not include this in a discussion of use designation; in fact there is no serious discussion of use designation issues in the guidance.

Current Versus Potential Use

Page 20, Para 5: Although it acknowledges that use designations may take place without all the necessary information, the Guidance omits specifying how States and Tribes should fulfill a legal requirement that would help fill this gap. Specifically, while the EPA guidance makes reference to the Tier I protections of the antidegradation policy that require protection of existing uses, dating to November 28, 1975, it does not require that States and Tribes submit as part of any temperature standards revision, antidegradation policy implementation methods that specifically address how the regulators will identify the location of existing uses. There are

does not specify what assumptions EPA desires States and Tribes to use in the absence of information on whether uses were existing nor what assumptions it will use in reviewing information submitted. The guidance makes no mention of whether EPA will approve a standards submission that fails to even include use designations, located in time and place, if the submission includes new criteria that would apply to such uses.

V.1.2 Discussion of Use and Criteria Presented in Table 3

Page 23: *Table 3. Salmon/Trout Migration on Lower Mainstem Rivers*

The guidance is clear about EPA's proposal being a combination of numeric and narrative criteria. What is not clear is when waterbodies and their uses get protection from the narrative and when pollution sources get protection from the numeric criterion. For example, if the water quality exceeds the criterion and no feasible steps have been taken and insufficient cold water refugia exist, what effect does this have on point sources? Could any point source discharges of heated effluent be considered not causing or contributing to violations? Likewise, if a TMDL is being developed, does it aim to develop cold water refugia or just cooler temperatures?

EPA's recommendation steps be taken to restore and protect river functions that could provide cold water refugia in river segments in the lower mainstem rivers (where criteria would be 18-20°C) is a good one (although it leaves in serious question what constitutes "all feasible steps"). In addition, however, this requirement should apply to rivers with temperatures of 16-18°C because maintaining the functionality of the flood plain is important wherever flood plains exist.

Salmon and Trout Migration (with cold water refugia narrative provision)

Page 26, Para 4: The Guidance states that in order for the 20°C DADM to be protective of migrating salmonids there must also be cold water refugia, "to the extent that is if feasible." This does not make sense. Either the fish need the refugia or they do not. Feasibility is hardly the issue. This is even more true to the extent that salmonids are threatened or endangered because they are less able to take the stresses caused by the 20°C DADM plus the disease and physical performance issues discussed by EPA. Moreover, in paragraph 6 of this section, the guidance discusses "restor[ing] them to the maximum extent possible." EPA should acknowledge that the precise language it uses has different meanings. NEPA case law uses the latter formulation, whereas "feasible" implies that economic considerations have more weight.

V.2 Adoption of Regulatory Provisions to Protect Existing Water Temperature That is Colder Than the Numeric Criteria

Page 27, Para 1: It would be useful for EPA to refer to the idea that water quality standards regulations recognize the importance of protecting waters that are of higher quality than criteria

Page 27, Para 1: It would be useful for EPA to refer to the idea that water quality standards regulations recognize the importance of protecting waters that are of higher quality than criteria as “antidegradation.” Having done so, the agency can proceed to point out to States and Tribes that antidegradation is a required part of standards submittals and that antidegradation implementation methods are also required by EPA’s regulations. It is critical that EPA point out in this guidance that antidegradation not only applies to all waters and all sources, including nonpoint sources, but that it is essential that implementation methods also be prepared that apply to nonpoint sources. Otherwise, there is simply no point in pretending that antidegradation has any relevance to restoring and protection water quality and salmonids that depend upon it. If EPA believes, as it states, that high quality waters “represent the last remaining strongholds” for T&E salmonids, it should have more to say about the essential, mandatory nature of states to adopt such antidegradation provisions and the methods by which those provisions will be implemented. Implementation will not occur without specific steps.

Page 28, Para 3: EPA recommends various actions but does not instruct states that it will disapprove standards submitted without strong regulatory antidegradation provisions complete with implementation methods. This is a huge error. EPA’s suggestion that one approach – prohibiting measurable increases – poses a problem with state implementation. If, as Oregon has, a state determines that measurability can be assessed at the edge of a mixing zone, this narrative is essentially pointless. Likewise, how will states assess increases, let alone measurable increases, from nonpoint sources? The water quality impacts from nonpoint sources are not known for their ease in measuring. If the stream is dying of a thousand cuts, it is irrelevant if the cuts are less than or equal to .25°F.

This paragraph lacks discussion of the importance -- the critical nature -- of implementation methods to be adopted into state standards. Implementation methods are needed to answer the types of questions that EPA’s recommendations raise. Moreover, if EPA allows States to adopt their implementation methods as guidance, there will be nothing in state rules that constitutes adequate assurances of protection against degradation. Therefore, if EPA is serious about not allowing states to allow sources to degrade current high quality waters, it will instruct states, within this guidance or in another forum, that antidegradation implementation measures must be contained in formal rules. The implementation methods must demonstrate that each potential source of thermal degradation – loss of instream flows, logging practices, grazing, farming, point source discharges, urban development – has specific methods to ensure that flows will be maintained, stream side vegetation and shading will remain, sedimentation will be precluded, etc. EPA needs to stop thinking about this in a theoretical way and get very practical.

V.3 Adoption of Mixing Zone Provisions to Protect Salmonids

Page 28, Para 1: The guidance states that EPA “reviews a State’s or Tribe’s particular mixing zone policy on a case-by-case basis as part of its review of water quality standards.” It is

extremely unclear what this means. “Case-by-case” suggests that EPA looks at each submitted revised or new standard with the State’s mixing zone rule in mind, even if the mixing zone rules and policies have not been newly submitted for review. If that is true, which it should be, EPA should clarify this in the guidance. If it is not true, EPA should clarify that it only reviews a State’s mixing zone policy when it has been submitted as revised, in which case this guidance is both extremely misleading and poor policy.

Page 28, Para 2: Likewise, EPA should state whether it will disapprove temperature standards submitted for lack of specific provisions that apply to thermal plumes when mixing zone rules and policies have not been revised by a State. It is not sufficient for EPA to simply recommend that States take actions that will be unpopular with the regulated community without explaining what EPA’s response will be if the State fails to act. In addition, EPA fails to recognize the possible interactions between a State’s temperature standard and its mixing zone rules. The issue of mixing zones is not restricted to the localized effect of a given thermal plume, although clearly that is an important issue. The remaining issue is whether a State’s application of its mixing zone policies will essentially negate the remainder of its temperature standard. This is exactly what is contemplated by some staff and managers at Oregon DEQ. Because the standard is written as to proscribe any “measurable increase” (defined as .25°F) from any source and because a mixing zone allows for suspension of criteria within the mixing zone, some at the agency believe that the point of measurement is the edge of the mixing zone (and go so far as to then conclude the source is a zero load). The problem is caused in part because Oregon’s mixing zone policy allows nearly unfettered discretion for permit writers in the placement of the actual zone. In other words, in order to assure that a given source is not contributing a measurable increase, the zone need only be moved to a point where the plume is causing less than .25°F. This essentially guts the temperature standard with regard to point sources. While point sources are probably a minor contributor to heat, every contribution has to be reduced or eliminated in order to restore thermal regimes and to prevent further degradation. EPA must be cognizant of how standards and mixing zone policies can be used to negate federal NPDES permitting regulations and to preclude protection of waters from thermal pollution.

Page 28, Para 3: Mixing zones should be prohibited in water quality limited streams. There is no justification for allowing thermal plumes that add risk to threatened and endangered species in a situation where water quality for that parameter is sufficiently degraded as to be considered harmful (i.e., exceedances of numeric criteria). There is no justification for allowing point source discharges that cause or contribute to water quality standards violations.

VI. Approaches to Address Situations Where EPA’s Recommended Numeric Criteria are Inappropriate or Unachievable

VI.2 Use of State’s or Tribe’s “Natural Background” Provisions

Page 30, Para 1: It should be unthinkable that EPA suggest that States and Tribes adopt standards that allow “no measurable human caused temperature increase above natural background.” As EPA well knows, having approved this type of standard in Oregon, no measurable increase means equal to or less than .25°F. Not only would this mean, in a best case situation, that already high and unsafe temperatures would exceed .25°F but it would likely mean they would far exceed those high natural levels. States have already demonstrated their “creative” (i.e., deceitful) approaches to determining measurability and loads at the edge of mixing zones. This might also be interpreted to mean that no single source could be measurable, meaning that there could be an unlimited number of sources less than .25°F. EPA’s guidance should be clear: no anthropogenic contribution may be allowed.

Page 30, Para 3: EPA should be very clear about what it means to instruct states to “capture to the greatest extent practicable all the human impacts that affect river temperatures” in the context of allowing states to use the estimated natural temperatures as the water quality target for TMDLs. Given EPA’s historic reluctance to even mention the issue of instream flows, for example, it is difficult to imagine that EPA would require States to completely identify insufficient instream flows, water withdrawals and identification of measures required to restore instream flows. Yet, without this not only would “all human impacts” not be “captured” but the TMDL would seriously miscalculate what was natural and what was human requiring remediation. The same is true for physical attributes of streams including but not limited to sedimentation. In other words, EPA would have to overcome its attitude towards seeing TMDLs as addressing pollutants only if this approach is to work. Otherwise, EPA is merely showing the States an approach to bypass the temperature criteria without a concomitant approach to ensuring the stated goal is met.

Page 30, Para 4: This half-hearted approach by EPA is demonstrated in the language discussing the importance of cold water refugia in the context of natural conditions clauses. The guidance refers to the fact that States “should” do various things. If EPA is to adopt this approach it must be because States will be required to take the goal seriously. We understand this is guidance but EPA does not need to signal that it will approve such natural conditions clauses in the absence of the necessary protections.

VI.3 Use Attainability Analysis and Numeric Criteria that Supports a “Marginal” or “Limited” Use

Page 31, Paras 1-3: EPA’s description of Use Attainability Analysis (UAA) suggests that a State could avoid the process described in the section immediately above – i.e. identifying all the human impacts where natural conditions are causing the exceedances – and the discussions about protecting cold water refugia. In both of the latter, EPA indicates the State would need to think about how salmonids would have survived in naturally inhospitable temperatures. In the UAA analysis it appears States could simply bypass this process and concern themselves only with

actual temperatures, thereby adopting less-than-protective criteria without taking any other actions to assist in the survival of the species. This should be remedied.

VII. The Role of Temperature WQS in Protecting and Restoring ESA-Listed Salmonids and Examples of Actions to Restore Suitable Water Temperatures

Page 32, Para 2: The list of example actions is rather pathetic. For example, it includes flows that could be increased from more efficient water withdrawals but does not include anything more drastic. It appears that EPA has forgotten that the species of concern are at the brink of extinction. It also appears that EPA has forgotten its obligations under section 7(a)(1) of the Endangered Species Act. This would be an ideal location for EPA to state what it is going to do about restoring thermal regimes in the region. Instead, it is silent.

VIII. Conclusion

EPA continues to side-step the important issue of geographic location and timing for application of the recommended criteria. The guidance does not suggest that EPA will require this significant weakness in existing standards be remedied or will make the corrections itself. To the extent that States have actually identified times and locations for uses, they are inclined to choose ranges that mirror actual uses of today rather than what is necessary for protection and restoration of the species. The Guidance should include clear requirements that States and Tribes submit the times and locations of uses when criteria apply. These times must address the needs of the uses, not the current status of thermal regimes. For example, for the species that migrate to Idaho, the current shift in the regime causes the populations to be exposed longer to higher temperatures. Therefore, EPA should address issues related to the duration of exposure to adverse temperatures.

The problem of uses is now compounded by EPA's idea of a core area in which the 16°C criterion applies. The Guidance is less-than-clear on how States should define this core area and there appear to be no protections against a State under-defining it in order to apply the 18°C criterion instead. There are no assurances that the limited duration of exposure to 18°C contemplated by EPA will take place in the field. Flow alterations caused by impoundments and withdrawals slow downstream migration of juvenile salmonids thereby increasing their exposure to high temperatures.

To the extent that any of our comments on the previous draft remain applicable, we incorporate them by reference here.

Sincerely,

John Palmer
November 26, 2002
Page 12

Nina Bell
Executive Director

November 26, 2002

John Palmer
EPA Region 10
1200 6th Avenue
Seattle, WA 98101

Re: Second Draft of Regional Water Temperature Guidance

The Washington Environmental Council (WEC) thanks EPA for the opportunity to comment on this new draft of Regional Water Temperature Guidance. As a statewide organization working to protect Washington's environment and natural heritage for current and future generations, WEC has a long history of advocating for water quality protections and improvements.

Below are some detailed comments on the draft Guidance, divided into three sections.

Areas WEC strongly supports

WEC finds many improvements in this Second Draft and commends the EPA for this. From our perspective, the single greatest positive change is from using the natural thermal potential to using the biological requirement of the salmon to establish the recommended Water Quality Temperature Standards. Other areas we support include:

- Use of the biological requirements of salmon as the base for the temperature standards. This method is familiar and used by the states and tribes and has been integrated into many planning efforts. Thus it has a greater probability of success than the new and untested natural thermal potential. Full implementation and protection of the aquatic resources is the ultimate goal, this simpler, more familiar methodology has an innate advantage.
- The discussion on water temperature and the evolution of salmon life-history traits found in Section IV.I. is very important.
- The careful summary of how human landscape activities found in Section IV.2 have altered the historic temperature regimes is vital in educating the broader public now, and later as the Standards are used.
- The explanation of the cause and effect relationship between increased and altered temperature regimes and the decline of salmon found in Sections IV.2, V.I, and V.I.2 are all very important.

- The clear discussion of the regulatory background and authority of EPA to influence the final state and tribal standards found in Section II is vital.
- The clarification of the relationship between this guidance and the 1986 “gold book” standards found in Section III rebuts unfounded challenges.
- Another critical piece is the provision for protection of existing water temperatures that are colder than the numeric criteria and of existing cold water refugia found in Section V, V.I, V.1, V.2, and VII and the restoration of degraded habitat such as wetlands, floodplains and hyporehic zones as found in Section V.2. Without strong implementation methodologies in the State and tribal standards, the salmon will not recover.
- Including designation of potential habitat as well as existing habit found in Section V.1 is vital to maintaining sustainable populations and recovering them; recovery depends on restoration of quality habitat.
- Another important emphasis found in Section VII is the importance of protecting temperature in the headwaters in order to provide cold water input to lower river reaches.
- We are pleased that the guidance does not differentiate between fish-bearing and non-fish-bearing streams. All the streams are connected and all are covered by the Clean Water Act.
- We support the intent of the proposed mixing zone language.

Areas needing clarification, definitions, and guidance

The Council also has identified several key areas where the definitions and guidance are lacking or incomplete and need clear definitions and further clarification, including data, criteria and methodology requirements. These include:

- What are human caused changes “that cannot be remedied or that would cause widespread economic and social impact if they were remedied” as found in Section VI.3?
- How will “irreversible impacts” as found in VI.2 be defined and identified in an equitable way across many jurisdictions?
- How are the “natural temperature” values to be calculated?
- How will the “core areas” be accurately defined to include areas of probable restoration? Most of the data on fish use comes from recent samples taken at a time that salmon usage has been sharply limited. How will EPA be assured that this significant bias will be overcome? EPA needs to incorporate some state of the art principles for the delineation of the core zone.
- How will “furthest extent of use” be defined and what data will be required?
- “All feasible steps” is another term needing definition, guidance and criteria, as well as minimum data requirements.
- How will EPA evaluate probable levels of compliance? Without compliance the standards cannot achieve their purpose. With the universally declining governmental budgets, it is vital that probable levels of compliance be estimated as part of the decision criteria on the proposed standards from states and tribes, which are submitted to EPA for approval.
- Are you stating that 20C is the natural temperature for lower rivers and that it is currently fully protective, if all feasible steps are restoration are taken? Or is this some sort of political compromise?

- The Use Attainability Analysis as found in Section IV sorely needs a clear set of criteria and data requirements for the processes of changing the numeric criteria or the beneficial use designation.

Areas of significant concern

WEC also find several areas of the Guidance to be of significant concern. These include:

- The Section V criteria recommendations do not adequately account for the increased time salmon spend in warmer water due to reduced flows. This is especially true in the mainstem Columbia and Lower Snake River, where dams have disrupted the whole thermal regime.
- The protection from the risks due to sub-lethal temperatures has been undermined by a series of allowances. These include basing the criteria on the upper end of optimum, a 7DADM value which allows and can mask significant temperature spikes, ignoring the effects of food limitation or competition on the cold water thermal guild, exemptions for the warmest days, and inadequately defining the “core” areas.
- The integration of the salmonid use areas with recommended numeric criteria, and the broader landscape and cumulative issues is vital to the success of this effort to reduce the risks to salmon from lethal and sublethal temperatures. Clear guidance and recommended methodology is needed here.
- While having a mixing zone criteria is very important it is not at all clear that the current recommendations will adequately protect aquatic resources from high thermal inputs from point sources. More technical analysis is needed here before final recommendations are adopted.
- EPA should not permit changes to a water quality standard for seasonal use unless the historical uses are thoroughly documented, appropriate reference streams are available, and it is demonstrated that additional factors are not limiting the ability of fish to use the stream.
- There are several problems with 7DADM of 16C.
 - The 7DADM is confusing and hard to monitor, requiring measuring devices that are expensive and currently not in wide usage. It almost totally excludes the public from any role in monitoring. We recommend using a one day peak temperature, but requiring it to be exceeded two or three occasions in one year, before the stream reach would be in violation. This would allow the continued use of max/min thermometers.
 - Sockeye and coho have an optimum feeding temperature of 15C with saturation feeding. In the wild with limited food that temperature will be lower. Therefore, 16C cannot be considered to be protective of the most sensitive species.
- Excluding the stream temperatures measured when the air temperatures exceed the 90th percentile of the yearly maximum is inappropriate. In pre-occupation times salmon survived these temperatures by retreating to cold water refuges caused by cooler tributaries and cool influx from ground water often fed by hyporehic sources. Currently all of these sources of cold water have been severely impacted and many, if not most, have been lost. Therefore it is not correct to assume that salmonids today can survive these temperatures in the same way as in the past. Today they can have significant lethal or sublethal impacts, and thus must be included in the Standards guidance.
- The bull trout peer review identified 11C for bull trout juvenile rearing, as more appropriate than 12C or 13C, because of the reduced risk associated with lower temperatures from a

variety of perspectives. The impacts of limited food certainly recommend a lower temperature.

- The removal of a migratory criteria for bull trout in this second draft can be a problem for bull trout. Often temperature is a bar to migration and has been recognized as a cause of habitat fragmentation. Indeed information is limited, but EPA's job is to offer guidance based on the best available information; new and modified information is why reviews should be frequent, not delayed as the one in Washington has been.

Overall, WEC is encouraged by the changes we see in the second draft and urge EPA to further refine the guidance to better protect our public resources. Thank you for considering our comments.

If you have questions on these comments, please contact Marcy Golde, WEC's water quality volunteer at 206-527-6350.

Sincerely,

Joan Crooks
Executive Director

Municipality Comments

November 25, 2002

John Palmer
Environmental Protection Agency
1200 SW Sixth Avenue
Seattle, WA 98101

Re: Comments on Regional Temperature Criteria – 2nd Public Review Draft

Dear Mr. Palmer:

The Oregon Association of Clean Water Agencies (ACWA) is a private, not-for-profit organization dedicated to preserving and protecting Oregon's water quality. Our membership includes over 90 community and municipal wastewater treatment and stormwater management agencies from around Oregon, and associated professionals.

ACWA members have been involved in policy and technical discussions regarding the Oregon and regional temperature standard since the early 1990s.

EPA has done an excellent job in compiling and synthesizing the scientific information on temperature related to salmon populations in the Pacific Northwest. We appreciate your willingness to involve ACWA throughout this process, and to take time to meet with us and other municipal interests.

Summary

ACWA shares EPA, NOAA-Fisheries, and US Fish and Wildlife (the Services) commitment to clean water. Our members collaboratively funded development of a Temperature Management Plan Guidance Manual to assist Oregon wastewater treatment plants in development of Best Management Practice-based documents to assess and reduce temperature impacts from wastewater treatment plant activities. In addition, we worked with other public agencies in Oregon to fund the development of the Endangered Species Act Assessment Manual (April, 2002) a web-based interactive document that is available to stormwater, wastewater and water utilities throughout the Pacific Northwest on the ACWA web site. We have also funded and are currently collaborating with NOAA-Fisheries on identifying a "fish friendly" erosion control program focused on a protective but practical erosion control program for Oregon municipalities.

In our local communities, our members' municipal responsibilities for wastewater treatment and stormwater management reflects the communities' focus on protecting and improving

water quality in their watershed. However, we have fiduciary responsibilities in addition to environmental responsibilities - - we must ensure that ratepayers' dollars are invested where it will have the greatest environmental benefit. For this reason, ACWA believes efforts to reduce stream temperature in the Pacific Northwest are best focused in on-the-ground projects approached on a watershed basis - - not on debate about legal issues and administrative efforts.

ACWA members have wrestled with the point source implications of a temperature limit for numerous years. It is clear to our members that the answer to restoring cool water in the Pacific Northwest can only be accomplished on a watershed - - not a discharge pipe - - basis. The Regional Temperature Guidance needs to focus on fostering and promoting a watershed-based approach to cooling the waters within a basin, to the extent that the remaining natural system is able to respond.

We do not view the Guidance's reliance on Use Attainability Analysis or revisions of listed beneficial uses as realistic or practical tools for States and Tribes to use in pursuing stream temperature reductions. We urge EPA and the Services to reexamine the Oregon temperature standard and its use of Temperature Management Plans as a more realistic approach to tackling this difficult problem. The existing Guidance does not adequately define "significant" human impact and this will lead to much additional debate and possibly litigation. In the absence of a clear understanding of what the EPA and Services will accept as "significant" impact, we support instead the current Oregon Temperature Standard.¹

The Guidance should reflect that most contributions to the temperature problems plaguing Oregon streams are not point sources, but non-point sources stemming from solar radiation and ambient air temperature. The small amount of load that can be allocated to point sources after allowances are made for background should be equitably distributed between point sources.

Temperature issues will continue to be a major focus for Oregon and Oregon wastewater municipalities. We continue to believe that improving Oregon's approach to reuse of treated effluent in environmentally sound applications as a substitute for water withdrawals is a preferred water resources approach in many situations in our state, and we will continue to work with Oregon DEQ and others to pursue water reuse options for Oregon.

We support the inclusion of mixing zone discussion in the Guidance document. The use of mixing zones is a sound environmental management tool, and one we support.

Detailed Points

- ***Use Attainability Analysis***

We question the practicality of EPA's suggestion to exercising the Use Attainability Analysis as a tool for streams that do not meet the temperature criteria. Where are examples in the United States and in the Pacific Northwest that this section of the Clean Water Act is being used successfully? The resources for water quality planning are strapped at all levels - - federal, state, and local. We question if the resources necessary to prepare an adequate, scientifically documented Use Attainability Analysis would be well spent. Who will fund these efforts? Where will

¹ Oregon Administrative Rule (OAR) 340, Division 41

the funding come from at the state or federal level to review and possibly approve them?

Most importantly, we question if the public - - our ratepayers - - will find this type of administrative procedure acceptable, and if the Services would agree with even a well-crafted UAA once it reached their desks for concurrence under the Endangered Species Act (ESA). In a perfect world, the preferred alternative for resource expenditure would be to improve beneficial use designations rather than trying to dispute a temperature standard for inappropriate uses, we doubt the political or practical viability of pursuing UAAs.

This process is unclear, and technical guidance for its use is not available.

- ***Phased TMDLs/Adaptive Management***

ACWA supports a longer planning horizon for considering Total Maximum Daily Loads (TMDLs), especially for water quality parameters that will require an extended compliance schedule, such as temperature. A phased TMDL that may be reflected in temperature management plans and that incorporates adaptive management principles should be partnered with TMDL compliance schedules also on a longer schedule with planned benchmarks and evaluation cycles. The associated compliance schedules in National Pollutant Discharge Elimination System (NPDES) permits should also extend beyond a 5-year permitting cycle as part of that adaptive management approach.

- ***Clean Water Act/Endangered Species Act Interface***

Alignment between the federal agencies involved in meeting the similar but different goals of these two federal programs is important. However, we want to stress that the goals of the Clean Water Act (fishable, swimmable waters) and the Endangered Species Act (recovery of species) are not totally the same. The responsibility of a NPDES permit holder (...and others) is to avoid the “take” of an endangered species; the responsibility of US Fish and Wildlife and NOAA-Fisheries is to recover the species - - those are different goals and different responsibilities.

We suggest that EPA and the Services consider a more programmatic review on a larger scale where the similar goals and priority issues on the landscape can be shared between the Services, EPA, state agencies, tribal agencies, and local water quality organizations. Moving through resource protection issues on a case-by-case basis is not workable and the considerable talent at the state, local, and tribal level to meet broad goals with their unique local talents and resources is not being optimized.

Local wastewater agencies are committed to fish issues - - but salmon in the region will not be recovered through the NPDES permitting program. EPA and the Services should be focusing their efforts - - and therefore state and local agency efforts – – where it will do the MOST good for the fish.

ACWA has made significant efforts to work cooperatively with NOAA-Fisheries and to encourage its members to focus on the protection of the fish population, including development of the previously mentioned "fish friendly" handbook. Many of

ACWA's members are going beyond the requirement to not "take" and are voluntarily seeking to assist restoration of fish habitat and enhance species recovery. However, by merging ESA goals (that may well go beyond the "no take" requirement) into National Pollutant Discharge Elimination System (NPDES) permits, wastewater treatment plants may be subject to permit violations for actions that do not necessarily protect fish, much less result in a "take".

- ***Water Rights***

Because most areas of cold-water refugia in otherwise warm water streams are maintained or strongly influenced by groundwater, any protection of refugia must exert some controls on groundwater withdrawal. NPDES permit holders are rarely in the position to exert this control. Similarly, the refugia would have to be protected from source sedimentation or other modifications of channel morphology, as well as point inputs of thermal loads, to be fully protected. Consequently, nonpoint pollution sources and water right holders with groundwater withdrawals should be held equally accountable for the protection of these areas.

- ***Lack of Regulatory Buy-In***

The Regional Temperature Guidance was proposed to the States, Tribes, and others interested in water quality issues as a way to expedite ESA consultation and approval of water quality standards. We question how committed the Services are to this process, and if the agreements being made here will translate into Services involvement and consultation in decisions being made on a project-by-project basis.

- ***Spatial Distribution***

We are intrigued by the concepts included in the Guidance regarding spatial distribution of a specific fish population in a watershed. However, we have some concerns about committing to implement this concept at a landscape level. The first need is for improved data collection and mapping of species distribution. We suggest the Services fund the necessary data collection and mapping for the species of concern. Once additional information is available and mapped, we have technical issues about how this concept might work. How would species distribution mapping handle the incidental occurrence of an individual fish that might be utilizing sub-optimum habitat? What about changing conditions such as climate shifts or reductions in water quantity in a stream due to on-going water rights allocations? There are likely some opportunities in this concept, but it will be very complex and technically difficult to be extremely accurate at a landscape level.

- ***Cold Water Refugia***

Protecting cold-water refugia is important but we have technical questions about how to implement this provision in a regulatory standard. Thermal refugia are maintained when two natural phenomenon coincide:

- Concentrated input of cool water, usually as a localized flow of groundwater, and
- Instream structure, such as a log jam or deep pool that prevents the rapid mixing of this cool water with the larger (and warmer) water mass.

We question how a regulation can be written to ensure these physical conditions occur.

- ***Mixing Zones***

EPA's recognition and support of mixing zones within the Regional Temperature Guidance is an excellent addition, and should be retained. Thirty years of NPDES permitting has demonstrated that mixing zones - - properly engineered and regulated - - are an important environmental management tool. We have technical questions regarding some details included in the mixing zone discussion:

- What is the basis for the 25% cross-section limitation?
- How will the existing diffusers that result in an exceedance of this limitation be handled? Is retrofitting diffusers that exceed this limitation but are not harming fish a good investment of public dollars?
- What is the technical basis for the 2-second limit in the Zone of Initial Dilution (ZID)? How will this be calculated?

Conclusion

Without a clear understanding of the definition of "significant human impacts" in the draft Guidance, ACWA prefers the Oregon approach in the existing Oregon standard. The Oregon temperature rules with their adaptive management approach and focus on getting temperature reductions and improvements in water quality is a better regional model.

Please contact me at the ACWA office in Portland at 503/236-6722 if you have questions regarding our comments, or need additional information.

Very Truly Yours,

Janet A. Gillaspie
Executive Director

cc: ACWA Board of Directors
ACWA Water Quality Committee
Oregon DEQ – Mike Llewelyn/Mark Charles



Chehalis Basin Partnership

C/O Grays Harbor County

Department of Public Services

100 West Broadway Suite #31

Montesano, WA 98563

1.800.230.1638 - Lnapier@co.grays-harbor.wa.us

November 15, 2002

John Palmer
EPA Region 10
1200 6th Avenue
Seattle, WA 98101

RE: Second Draft of Regional Water Temperature Guidance for Public Review

Dear Mr. Palmer:

This letter is respectfully submitted on behalf of the Chehalis Basin Partnership (Partnership), the local planning unit established under Watershed Planning Act (Chapter 90.82 RCW). A portion of the Partnership's work includes addressing water quality standards, which will be a component of our watershed management plan that is scheduled for adoption by October 2003. Several members of the Partnership attended the public meeting hosted by EPA and the Department of Ecology on November 7, 2002. Please be advised that other members of the Partnership reserve the right to submit comments further articulating their respective issues.

The second draft guidance document appears to focus more on long term mechanisms to achieve the proposed guidance and to prevent further degradation. This appears to be a positive change. However, several of our Point Source Discharge entities expressed concern that the proposed guidance might make them targets for discrimination. In the Upper Chehalis, too many cities have fallen victim to compliance orders to improve, or construct new, wastewater treatment facilities on the heels of completing similar improvements to the facilities.

The proposed guidance incorporates a unique flexibility that the past guidance lacked. The current proposal seems to recognize that scientific techniques and approaches toward habitat enhancement and water quality are constantly evolving. This is evident in Section VI Approaches to Address Situations Where EPA's Recommended Numeric Criteria are Inappropriate or Unachievable. The Partnership appreciates that EPA is considering three approaches to address the situations where the systems cannot meet the guidance. Situation 2 (Section VI.2) would have greatly benefited several TMDLs in our area because it would have allowed impacts that were not human induced to be considered when determining the TMDL targets.

We hope that any modifications to the guidance that may occur during this comment period reflect the positive changes that occurred after the first draft.

Respectfully submitted,


Robert Spahr, City of Chehalis Mayor
Chehalis Basin Partnership Chair

Cities

Aberdeen
Bucoda
Centralia
Chehalis
Cosmopolis
Elma
Hoquiam
McCleary
Montesano
Napavine
Oakville
Ocean Shores
Pe Ell
Tenino
Westport

Counties

Grays Harbor County
Lewis County
Mason County
Thurston County

Tribes

Confederated Tribes
of the Chehalis
Quinalt Indian Nation

Water Suppliers

Grays Harbor Water District #2
Boisfort Valley Water company

Port of Centralia

Department of Ecology
Chehalis Basin Fisheries
Task Force
Washington Cattlemen's
Association

Weyerhaeuser

Mr. John Palmer
EPA Region 10
1200 6th Avenue
Seattle, WA 98101

Re: Boise City Comments on Draft Region 10 Guidance for Pacific Northwest State and Tribal Temperature Water Quality Standards

Dear Mr. Palmer,

Boise City Public Works provides wastewater treatment services to the residential, commercial, and industrial customers in the City of Boise, Garden City, Eagle, and portions of Ada County within our urban service planning. We discharge treated wastewater to the Boise River and have been active participants in water quality planning and assessment issues within the Lower Boise and Snake River watersheds. We have been tracking the temperature issue since 1991 and have incorporated the temperature issue into our water quality based facilities planning update completed in 1995. We appreciate the technical, practical, and regulatory challenges associated with development and implementation of temperature criteria within our watershed and the Pacific Northwest. We have been participants in the review of the first and second draft temperature guidance documents and appreciate the substantive changes that that EPA has made as the result of the first round of comments. The City is committed to and has an excellent record in meeting water quality treatment requirements contained in our permits. The City has benefited greatly from its efforts to restore and maintain the water quality and habitat along the river. The City's greenbelt and associated parks provide important recreation, aesthetic, and habitat benefits to our citizens and wildlife along the Boise River. We have reviewed the second draft temperature guidance document and have the following comments:

Comments

1. The Second Draft of the Regional Temperature Guidance (RTG) is an Improvement

The second draft of the temperature guidance is an improvement over the first draft. Thank you for incorporating the some of the comments and suggestions from all three states and other interested parties while developing the second draft for public review.

The City shares EPA and the Services commitment to clean water and protection of native fishes, including salmonids, throughout the Pacific Northwest. The Clean Water Act has been very successful in resolving essentially all of the point source related problems we had 30 years ago when the Act was first passed. Municipalities

have been and continue to be a strong partner in achieving and maintaining water quality improvements. Municipalities will have a continuing role to play in addressing the remaining and progressively more difficult to solve water quality problems, including nutrients, mercury, temperature. The City supports the following components of the second draft Regional Temperature Guidance.

a. Support for:

- Goals of the guidance (e.g. protection of salmonids; accounting for naturally warm water within the region; and, provide states and tribes with a practical and implementable temperature framework);
- Use of the river continuum approach for development and application of temperature targets (lowest temperatures high in the watershed, warm temperatures lower in the watershed). This approach makes sense biologically and physically, and is a good way to think about a number of water quality parameters (e.g. sediment, nutrient...);
- Recognition and methods to address high natural background temperatures throughout the region (e.g. natural background as criteria; UAA's; site specific criteria);
- 90th percentile exceedance approach; and,
- Use of Thermal mixing zones.

b. Additions that we believe should be incorporated into the final regional temperature guidance include:

- Temperature Management Plan concept included in Oregon Water Quality standards and the first draft of the RTG;
- Use of a watershed based approach to assess and address temperature issues; and,
- Recommended criteria for all salmonids and trout, including thermally adapted species (e.g. redband trout).

2. Major Technical, Regulatory and Practical Concerns

The City has significant concerns with the second draft of the Regional Temperature Guidance (RTG), including:

a. Overreach of CWA responsibility.

We are concerned that the proposed approach appears to overreach the authority of the Clean Water Act. The second draft identifies the relationship between the CWA and Endangered Species Act (ESA) but then goes on to propose criteria that are based on optimal conditions instead of adequate to protect conditions for each life stage. The CWA requires temperature criteria that support and protects the use. Full support and protection of the use will, and does occur at temperatures that are greater than optimal, as demonstrated by temperature and fish studies conducted by the State of Idaho (Essig, 1998).

The Endangered Species Act requires actions that prevent “jeopardy” and prohibits “take”, neither of which requires optimal conditions. ESA has additional mechanism to help recover a listed species (e.g. designation of critical habitat, habitat conservation plans) that appear to be needed and are unrelated to the Services role in consultation on the adequacy of state water quality standards to prohibit take and avoid jeopardy. This is the one of the most significant problem with the document and must be fixed.

As a practical matter, the science suggests that there is a range of temperatures that provide adequate protection for various species and life stages. Species, particularly those in marginal or extended ranges, use sub-optimal habitats as best they can. It is unrealistic and inappropriate statistically to expect attainment of optimal conditions nine out of ten years or where species are at the end of their geographic range and are sub-optimally filling empty or underutilized ecological niches. Use of a range of temperature would be a significant improvement and accommodate the large variation in spatial, elevation, aspect, and climatic zones within the three states. A range of values also allows states the flexibility to choose the appropriate target for the climate, elevation, and aspect of a waterbody and also allows states flexibility to choose different temperature levels based on the condition and sensitivity of the species population or life stage condition (risk based decision by the state, not the criteria document).

Recommendation

We suggest that protective temperature criteria be proposed for each life stage as a range of temperatures, with the low end of the range being the second draft optimal temperature and the high end of the range being a temperature level that represents upper bound that satisfy ESA (e.g. prevent take, avoid jeopardy) and CWA (e.g. support) requirements. This approach will also provide flexibility to states in application of the various criteria to the large spatial and geographic diversity contained within the three states.

- b. The final regional temperature guidance should include temperature recommendations for all native salmonids, not just cold water species.

The final regional temperature guidance should include temperature recommendations for all native salmonids, including trout and salmon that have adapted to the high water temperature in the large interior portions of the states of Oregon, Washington and Idaho (e.g. interior redband trout, Lahontan cutthroat trout) to provide states and tribes a complete range of appropriate and necessary temperature criteria for submission in state water quality standards packages and to reflect the actual temperature conditions under which native salmonids and trout co-evolved. Large portions of the area of the three states have native redband trout which are widely recognized as thermally adapted trout, capable of surviving in harsh desert conditions (Zoellick, 1999) which is instructive in determination of the natural temperature conditions within portions of the basin that existed historically and will continue to exist over large spatial areas of the three states subject to this guidance.

Recommendation

The final regional temperature guidance must include the full range of temperature necessary to support the existing native salmonids and trout within the three states.

- c. Support the broader use of Use Attainability Analyses (UAAs) when and where appropriate but note the barriers to this being a practical approach to address high natural background temperatures:

We support the increased use of UAAs and other CWA tools when and where appropriate (sub categories of use; site specific criteria, section 316(a) provisions regarding temperature, variances...) to address attainability issues for temperature and other pollutants. However, as a practical matter, this is a tool that has received little support by the states, public, or EPA. We do agree however that additional subcategories of use and refinement of the existing use categories is necessary in many states and that UAAs are a potentially useful tool for refinement of the uses and adoption of the associated criteria.

UAAs classically have been developed for removal of uses due to one or more of the six factors listed at 40CFR131.10(g), not refining criteria for specific waterbodies. If the use existed on or after November 28, 1975, the CWA does not allow the use to be removed. With few exceptions, aquatic life is present throughout nearly all waters of the three states. This is not to say that designated uses do not need to be refined in the state water quality standards. Our observation is that the majority of waters in Idaho are defaulted to or designated cold water biota and that many of them should be designated seasonal cold or cool water biota, or should

have site specific temperature criteria if the criteria are going to be consistent with the biological needs and expectations of the three thermic guilds of fish (cold, cool and warm) that have evolved in the Pacific Northwest (Zaroban, et al, 1997) to fill the habitats that historically have been available. The National Academy of Sciences (NAS) has made similar observations concerning the need for refinement of uses prior to development of TMDLs (NAS, 2001).

We believe that the natural background provisions contained in the second draft RTG document as criteria, and in all three states water quality standards, development of new sub-categories of use, or site specific criteria development will be much more appropriate and administratively expedient method of correcting the temperature criteria than removal of use in a UAA. We anticipate that temperature related removal of a use is actually likely be a very rare occurrence as there are very few situations where the water is so warm that it has not supported some aquatic life use since 1975.

Recommendation:

The final RTG should contain additional discussion of use other CWA mechanisms, including sub-categories of use, variances, section 316(a) provision, and how the use of new subcategories relates to current uses states have identified (e.g. When is a UAA required?).

d. Spatial Application of Criteria

The second draft RTG proposes life stage temperature criteria without discussion of the geographic scope or application of the criteria. There are significant areas of Idaho above the Hells Canyon Complex that have resident but no anadromous salmonids and trout. The final RTG should include the full suite of temperature criteria for all Pacific Northwest salmonids and trout, including the thermally adapted trout like redbands and clarifying language concerning the applicability of the criteria to waters inhabited by the specific species and life stages of salmon or trout. This sort of guidance will be very helpful to states and tribes as they develop water quality standards proposals for public and EPA review and approval.

Recommendation:

The final RTG should include the full suite of temperature criteria for all Pacific Northwest salmonids and trout, including the thermally adapted trout like redbands and clarifying language concerning the applicability of the criteria to waters inhabited by the specific species and life stages of salmon or trout.

- e. Point Sources a minor problem. States need to develop and implement tools to minimize Point Source impacts.

Concerning temperature, municipal point sources appear to be a minor problem, natural background (e.g. elevation, solar insolation, aspect), nonpoint sources, water use/management all appear to be more significant and more difficult to control influences of the thermal characteristics of existing waters. The final RTG and EPA's review and approval of state water quality standards should not prohibit states from developing and implementing innovative and practical tools (e.g. Temperature Management Plans (TMPs) or trading) that address point source temperature impacts and compliance with a states temperature standards.

Recommendation

Restore the TMP and add trading as tools that states can use to address point sources compliance with state water quality standards for temperature.

- f. Federal agencies control large areas of land and facilities (dams) that contribute to temperature problems in the Pacific Northwest. Federal facilities and lands should be implementing measures necessary to meet the existing state water quality standards.

Adoption of unachievable temperature criteria will not assist in recovery of threatened and endangered species. Temperature monitoring in Wilderness Areas within Idaho show that existing and proposed temperature criteria are not being met but that native resident fish populations are healthy. Efforts directed at making improvement within specific watersheds that address the critical needs (e.g. habitat, hatcheries, harvest and hydropower); sustainable development in our cities; sustainable agriculture in the agricultural areas; sustainable harvest/forest health in the forests; and sustainable grazing on rangelands will go much further toward our meeting the biological needs of native species that will adoption of criteria that are unachievable.

Recommendation:

Develop an adaptive management approach to minimize anthropogenic effects on the waters using a watershed based approach to address the most important and cost effective stressors first. This approach would address the most significant problems/risks first and adjust as more is learned about the system and its response. The final RTG should include adoption of a broader range of allowable life stage temperatures, consistent with those historically present within the region as a result of natural or best attainable temperatures. These targets will be higher than the optimal values contained in the second draft RTG document.

g. Problems related to water rights/water storage/dam operation.

The second draft RTG suggests that numerous water use practices have increased water temperature and reduced ground water flows to streams. There are also corresponding examples where anthropogenic activities have cooled stream and increased instream and groundwater flows during critical summer months (e.g. Dworshak Dam, Anderson Ranch Dam, Lucky Peak Dam). For example, August regulated summer flows (1984- 1996) are four times greater than pre-dam flows (1895-1916) on the Boise River at Boise (IDEQ, 1998) and temperature, because they are from deep releases behind high dams are cooler by 6 to 13C than waters flowing into upstream dams. Return flows to the lower portion of the river are primarily from ground water, and the ten major irrigation surface return flows are cooler or essentially identical in temperature to the river (IDEQ, 1998). The final RTG should provide a balanced discussion of the anthropogenic effect of dams and water use throughout the area.

Water supply and use issues are not easily addressed through the CWA or ESA, and to a large extent are generally matters of state control. Federal facilities/land managers have significant role to play in optimizing the system. The federal family should take initiative to meet existing temperature criteria and should use the opportunity to implement temperature control in watersheds to show what practices are effective and what changes are possible.

Recommendation:

The final RTG needs to provide a balanced description of anthropogenic effects on temperature and timing of water and clarify that water rights are matters controlled by the states.

h. Mixing Zones: How will existing diffusers/mixing zones be addressed

We support the second draft RTGs suggestion of the use of thermal mixing zones. Some existing facilities have multi-port diffusers and mixing zones that extend beyond the 25% recommended in the guidance technical concerns migration barriers. Some facilities are located in waters where anadromous salmonids are present and some are located in waters where anadromous salmonids are not present.

The second draft RTG suggests incipient lethal temperatures for salmonids and proposed a 2 second exposure period. Additional information concerning the development of the regulation is needed in the final RTG.

Recommendation:

The final RTG should provide additional information concerning how the exposure time was developed for the incipient lethal temperature and discussion on how existing multi-port diffusers that may cause blockage should be addressed by the states (e.g. variance, exemption) and how blockage is or is not an issue for resident salmonids and trout

i. Criteria apply upstream of furthest downstream use

The second draft RTG suggests that criteria should apply at the furthest downstream use. This is an impractical and unattainable concept because many species, particularly in the interior of the states of Washington, Oregon, and Idaho occupy waters that are marginal with regard to temperature. Application of optimal criteria on waters with sub optimal thermal characteristics places the states in an impossible (e.g. no win) position with regard to 303(d) listing and TMDL development. A much better approach is to manage the land to protect all waters by minimizing anthropogenic impacts and using the best attainable and in some cases sub-optimal temperature as the target criteria where marginal use occurs.

Recommendation:

The final RTG needs to include language that acknowledges species are using habitat that have sub-optimal temperature conditions because these ecological niches are available and marginally satisfy the needs of the species. Temperature observed in these instances could be used at the upper range of the acceptable temperatures for the species or life stage.

This concludes the comments that we have on the second draft RTG. We appreciate the challenge of developing guidance for an area as large and diverse area and hope you find these comments helpful in development of the final guidance. Should you have any questions concerning our comments or wish additional information, please feel free to contact me at 208.384.3916 or by e-mail at rfinch@cityofboise.org.

Sincerely,

Robbin Finch
Water Quality Manager
Boise City Public Works

References

Essig, Don. *The Dilemma of Applying Uniform Temperature Criteria in a Diverse Environment: An Issue Analysis*. Idaho Division of Environmental Quality. November 1998.

IDEQ, 1998, Lower Boise River TMDL, available via internet at <http://www.lbrwqp.boise.id.us/tmdl.htm#contents>

NAS, 2001, The National Academy of Sciences' National Research Council Report on Assessing the Scientific Basis of the Total Maximum Daily Load Approach to Water Pollution Reduction, House Water Resources and Environment Subcommittee Testimony, Thursday, June 28, 2001, available via internet at <http://www.house.gov/transportation/water/06-28-01/06-28-01memo.html>

Zaroban, D.W., Mulvey, M.P., Maret, T.R., and Hughes, R.M., 1997, Guild Classification of Pacific Northwest Fishes, abstract, 1 p.

Zoellick, Bruce W. *Stream Temperatures and the Elevational Distribution of Redband Trout in Southwestern Idaho*. Great Basin Naturalist, 59(2). 1999.



November 25, 2002

John Palmer
Environmental Protection Agency
1200 SW Sixth Avenue
Seattle, WA 98101

COMMENTS ON REGIONAL TEMPERATURE CRITERIA - 2nd PUBLIC REVIEW DRAFT

The City of Corvallis is an Oregon municipality serving a population of 52,215 and is situated along the banks of the Upper Willamette River. The City operates a municipal wastewater treatment plant which discharges a high quality treated effluent into the Willamette River which has been designated water quality limited for temperature.

The City of Corvallis shares EPA and NOAA-Fisheries commitment to clean water. However, the City has fiduciary responsibilities in addition to environmental responsibilities. We must ensure that ratepayers' dollars are invested where it will have the greatest environmental benefit. Efforts to reduce stream temperature in the Pacific Northwest are best focused in on-the-ground projects approached on a watershed basis. It is clear to the City that the answer to restoring cool water in the Pacific Northwest can only be accomplished on a watershed, not a discharge pipe, basis. The Regional Temperature Guidance needs to focus on fostering and promoting a watershed-based approach to cooling waters within a basin, to the extent that the remaining natural system is able to respond.

The City of Corvallis would like to offer the following specific comments on the proposed EPA Region 10 second draft of the regional temperature guidance:

Use Attainability Analysis

We question if EPA's suggestion that exercising Use Attainability Analysis as a tool for streams that do not meet the temperature criteria is practical. Where are examples in the United States and in the Pacific Northwest of this section in the Clean Water Act being used successfully? The resources for water quality planning are strapped at all levels (i.e., federal, state, and local). We question if the resources necessary to prepare an adequate, scientifically documented Use Attainability Analysis would be well spent. Who will fund these efforts? Where will the funding come from at the state or federal level to review and possibly approve them?

Most importantly, we question if the public (our ratepayers) will find this type of administrative procedure acceptable, and if NOAA-Fisheries would agree with a well-crafted Use Attainability Analysis once it reached their desk for concurrence under the Endangered Species Act (ESA).

This process is unclear, and technical guidance is not available. The Use Attainability Analysis approach is a misguided deterrent from our goal of protecting Oregon's water quality. We are concerned that dollars will be misspent without any gain in fish habitat in addition to the loss of public support for the process.

Phased TMDL/Adaptive Management

The City supports a longer planning horizon for considering Total Maximum Daily Load (TMDL), especially for water quality parameters that will require an extended compliance schedule, such as temperature. A phased TMDL that incorporates adaptive management principals should be partnered with TMDL compliance schedules also on a longer schedule with planned benchmarks and evaluation cycles. The associated compliance schedules in National Pollutant Discharge Elimination System (NPDES) permits should also extend beyond a 5-year permitting cycle. The phased TMDL/Adaptive Management approach will provide municipalities with greater flexibility resulting in more efficient expenditure of public funds.

The City of Corvallis prefers the current State of Oregon temperature standard (Oregon Administrative Rule OAR 340, Division 41) with their adaptive management approach and focus on getting temperature reductions and improvements in water quality as a better regional model.

Clean Water Act/Endangered Species Act Interface

Alignment between the federal agencies involved in meeting the similar but different goals of these two federal programs is important. However, we want to stress that the goals of the Clean Water Act (fishable, swimmable waters) and the ESA (recovery of species) are not totally the same. The responsibility of an NPDES permit holder is to not "take" a listed species; the responsibility of NOAA-Fisheries is to recover the species. These are different goals and different responsibilities.

The City of Corvallis is committed to improving water quality. However, salmonids in the Willamette River will not be recovered through the NPDES permitting program. Point sources are **not** the major contributors of heat load in the watershed.

The Oregon Department of Environmental Quality (DEQ) has gone on record as stating that 75% of Oregon's watershed basins are primarily affected by forestry, agriculture, development and other non-point sources. DEQ further states that non-point sources play a significant role in the remaining 25% of watershed basins where non-point and point sources both play a role. Therefore, non-point sources contribute the majority of the heat load in a watershed and must be held accountable.

In the Upper Willamette River Steelhead Evolutionary Significant Unit (ESU), NOAA-Fisheries has depicted the land ownership as the following: Private (88%), Federal (10%), and State/Local (2%).

Additionally, in the Upper Willamette River Chinook Salmon ESU, NOAA-Fisheries has depicted the following land ownership: Private (75%), Federal (23%), and State/Local (1%). With local governments controlling only 1 - 2% of the land, it will be impossible for municipal point sources to offset the heat load from non-point sources. Municipal point sources cannot afford to clean up after non-point sources, especially with current budgetary constraints.

Federal agencies, state agencies, tribes, and local jurisdictions should concentrate on the following: riparian vegetation/shading, water withdrawals, water reuse, channel depth/width restoration, erosion control, and development. These items are non-point source driven and focusing on them is the only solution to stream temperature and fish habitat restoration. Although there are jurisdictional issues governing regulation of non-point sources, the EPA Draft Guidance for Temperature Water Quality Standards spells out clearly non-point sources are the problem yet prescribes point sources to fix it. This approach is illogical and will not achieve the desired goal. EPA and NOAA-Fisheries should be focusing their efforts - and therefore tribal, state and local agency efforts - where it will do the MOST good for the salmonids.

Water Rights

Because most areas of cold-water refugia in otherwise warm water streams are maintained or strongly influenced by groundwater, any protection of refugia must exert some controls on groundwater withdrawal. NPDES permit holders are rarely in the position to exert this control. Similarly, the refugia would have to be protected from non-point source sedimentation or other modifications of channel morphology, as well as point inputs of thermal loads, to be fully protected. Consequently, non-point pollution sources and water right holders with groundwater withdrawals should be held equally accountable for the protection of these areas.

Lack of Regulatory Buy-in

The Regional Temperature Guidance was proposed to the States, Tribes, and others interested in water quality issues as a way to expedite ESA consultation and approval of water quality standards. We question how committed NOAA-Fisheries is to this process, and if agreements being made here will translate into NOAA-Fisheries involvement and consultation in decisions being made on a project-by-project basis.

Spatial Distribution

The City is intrigued by the concepts included in the Guidance regarding spacial distribution of a specific fish population in a watershed. However, we have some concerns about implementation of this concept at a landscape level. The first need is for improved data collection and mapping of species distribution. We suggest that NOAA-Fisheries fund the necessary data collection and mapping for the species of concern. Once additional information is available and mapped, we have technical issues about how this concept might work. How would listed species naturally attempting to extend their range be handled? What about changing conditions such as climate shifts or reductions in water quantity in a stream due to on-going water rights allocations? A case in point

was the diversion of water from the Klamath River to farmers, which possibly contributed to the death of more than 40,000 salmon due to increased water temperature, reduced spacial distribution (causing crowding and increased disease), and exposure to concentrated pollutants (due to decreased dilution).

There are likely some opportunities in the spatial distribution concept, but it will be very complex and technically difficult to be extremely accurate at a landscape level.

Cold Water Refugia

If the intent is to protect cold water refugia by implementing a numeric limit for NPDES dischargers, the City would recommend a narrative temperature criterion. If the burden for protecting cold water criteria is shared by non-point sources, then we recommend the approach to identify and establish high quality waters for temperature and establish numeric criteria equal to the current conditions.

Mixing Zones

EPA's addition of mixing zones within the Regional Temperature Guidance is an excellent addition, and should be retained. Thirty years of NPDES permitting has demonstrated that mixing zones, properly engineered and regulated, are an important environmental management tool. However, the basis for the 2-second limit in the zone of initial dilution (ZID) and the 25% cross-section limitation are not clear.

As a result, we recommend lowering the 32° C (90° F) limit at the edge of the ZID. The limit could be lowered to 26° C (79° F) if that will eliminate the 2-second limit in the ZID and the 25% cross-section limitation. This approach would be more protective than 32° C since the EPA draft guidance Table 1 lists juvenile rearing lethal temperature (1 week exposure) limit to be 23 - 26° C (constant).

The City of Corvallis has collected ambient river and wastewater effluent data that supports the achievability of this limit. Additionally, most of the heat load in wastewater effluent results from the ambient surface water temperature due to water withdrawal by water treatment plants. As a result, as ambient temperatures decrease due to watershed habitat restoration, wastewater effluent temperatures will also decrease.

Technical Corrections

The City noticed two typographical errors in the temperature limits for Tables 3 and 4. First, Bull trout rearing (Table 3) should be 12° C or 54° F. Second, Steelhead smoltification (Table 4) should be 14° C or 57° F.

This concludes the City of Corvallis comments regarding the proposed EPA Region 10 second draft of the regional temperature guidance, and the City appreciates the opportunity to review and submit comments on this document.

ANGELA PARRISH
WATER QUALITY ANALYST
CITY OF CORVALLIS
PUBLIC WORKS

LARRY LAMPERTI
ENVIRONMENTAL ANALYST
CITY OF CORVALLIS
PUBLIC WORKS



PUBLIC WORKS



November 26, 2002

John Palmer
EPA Region 10
1200 6th Ave
Seattle WA 98101

Re: Second draft- EPA Regional 10 guidance for regional water temperature standards -review comments

Dear Mr. Palmer:

This letter presents the City of Everett's comments concerning proposed *EPA Region 10 Guidance for State and Tribal Temperature Water Quality Standards*.

Previously, the City submitted comments on February 21, 2002. At that time we expressed several concerns about the then proposed guidance. Our review of the subsequent second public review draft finds that EPA Region 10 has, indeed, considered and responded to most of our concerns, as well as those of others. Also, the second round of public meetings to explain and summarize public review and changes made to the guidance was very helpful and appreciated. Our review comments on the revised guidance are as follows:

1. **Lakes/Reservoirs** - During the second public meeting held at Lacey, WA on November 7th, a notable audience question and response from EPA occurred. EPA acknowledged that guidance scope does not cover lakes (or reservoirs).

EPA should explicitly clarify that the guidance is inappropriate for lakes and reservoirs. Rivers derived from the outlets of lakes or reservoirs are not representative of the conditions that EPA evaluated in developing the criteria. Such outlet waters may at times have temperatures higher than the numeric criteria because they are extensions of the waters of a lake or reservoir. Outlet waters will remain similar to a lake's until a new thermal equilibrium occurs due to natural processes.

Further, EPA should advise that with outlet waters of lakes, numeric temperature criteria do not apply upstream of the areas of actual fish use. Upstream (outlet) waters may naturally be warmer than downstream. Preferably, narrative form would elucidate circumstances that numeric criteria couldn't address adequately (as proposed under guidance at VI, pp. 29-32).

While the guidance states that "EPA took this situation into consideration when recommending criteria ("numeric criteria apply upstream of the furthest downstream extent of use") the logic is backwards with lake outlet waters which EPA has acknowledged weren't considered. Hence, ***additional narrative is needed for clarification to cover outlet waters*** (pp. 19-20) and perhaps in VI.

2. **Numerical Temperature Criteria** – The various types of proposed temperature criteria, with their various times of application are potentially very confusing. They will be difficult to implement and could lead to irrelevant implementation methods. ***Single maximum numbers for summer time conditions would be sufficient***, allowing for natural cooling to meet the needs at other times of the year.
3. **Natural Conditions** – Provision should be made for natural conditions which exceed numerical criteria. ***We concur with the proposed narrative form in VI.*** The necessity to identify specific temperature standards for natural conditions is, however, unduly burdensome and would create another implementation problem. Also, ***an allowance should be made for small increases above natural temperatures due to human causes.*** For example, the 0.3-degree C. value in Washington's regulations is a reasonable allowance.

Situations may exist or occur in the future, however, when some human-initiated water temperature increases may be beneficial.

"Note: water temperatures can also be too cold for salmonids, but that is generally a natural condition and not an issue for water quality standards." (pg. 17)

Consideration or acknowledgment should be given to circumstances when/where increasing water temperature could be acceptable. (See also our earlier comment #4, 2/21/02, wherein some temperature increase may be partially responsible for enhancing fish production.)

4. **Unusually Warm Conditions-** We concur with the concept. Criteria exemption from attainment during unusually warm conditions is necessary but incomplete as proposed. A requirement based on a once-in-10-year frequency is inadequate because "unusually warm" conditions may occur more often in some areas. Situations with "warmer" conditions than "normal" are common and can be related to natural conditions.

For example, water temperature data for streams within the Olympic National Park caused the Department of Ecology to consider 303 (d) listings in 1994. Eventually, the contemplated action was cancelled* because it was realized the temperatures were natural since the streams were in the national park. The number of days with exceedances above the existing criteria were substantial. Hence a seven-day average daily maximum only once in 10 years is not a technically justified or supportable criteria (Pg 19). Thus, a **narrative form without specific technical criteria is the appropriate approach.**

* Final section 303(d) list – WRIA 20. WA Dept of Ecology. April 4, 2000.

We appreciate your consideration of these and our previous comments.

Sincerely yours,



Roy G. Metzgar
Sr. Environmental Specialist

cc: Mark Hicks, Washington State Dept of Ecology
Bruce Meaker, Snohomish PUD



CITY OF PORTLAND ENVIRONMENTAL SERVICES



1120 SW Fifth Avenue., Room 1000, Portland, Oregon 97204-1912 Dean Marriott, Director Dan Saltzman, Commissioner

November 26, 2002

John Palmer
US Environmental Protection Agency
1200 SW Sixth Ave.
Seattle, WA 98101

RE: Comments on second Draft of EPA Region 10 Guidance for Pacific Northwest States and Tribal Temperature Water Quality Standards

Dear Mr. Palmer:

The City of Portland (City) appreciates the opportunity to comment on the second public review draft of the "EPA Region 10 Guidance for Pacific Northwest States and Tribal Temperature Water Quality Standards".

The City of Portland is the largest municipality in Oregon and is dealing with numerous water quality related challenges. The lower reaches of Willamette River and its tributaries within the City are all water quality limited for temperature. The Oregon Department of Environmental Quality has TMDLs under development. The City is responsible for two point sources of thermal loadings, the Columbia Boulevard and the Tryon Creek waste water treatment plants. In addition, the City must address the thermal load issues related to urban stormwater discharges within the City limits, and must comply with the provisions of the Endangered Species Act.

We appreciate the work EPA staff and others put forth to greatly improve upon the first draft of this guidance document. While we feel that many of the resolutions contained in the latest draft are very positive, we have the following questions/concerns about the practical application of this guidance.

➤ **Adaptive Management/Temperature Management Plan**

In order to create a meaningful temperature TMDL, it is critical to allow for adaptive management over an extended period of time. Since compliance will not be immediate, such a phased TMDL could incorporate a temperature management plan in defining how compliance will be evaluated. We request that EPA reconsider the

removal of the potentially useful temperature management plan option in the second draft of the guidance.

➤ **Mixing Zones**

We support the addition of a mixing zone approach to this guidance. We request that EPA add more details regarding application and definition of these limits.

➤ **Clean Water Act (CWA)/ Endangered Species Act (ESA) Interface**

There appears to be an ongoing apparent disconnect in the approach to stream temperature between the Services (NOAA Fisheries and US Fish & Wildlife) and EPA. Goals and objectives should be aligned so that meeting permit requirements of the CWA will give some assurance of consultation approvals by the Services. That will greatly expedite the review process and not catch the permittees in a potential disagreement among the federal reviewers.

➤ **Cold Water Refugia**

The cold water refugia provision provides a more accurate representation of the way the natural system functions. Flow regimes prior to human influences, with relatively low summer base flows, probably supported the historically large salmonid populations through such mechanisms. Guidance for the implementation of this provision needs to be refined.

We ask you to consider our comments and look forward to your response.

Sincerely,

Dean Marriott
Director

November 26, 2002

John Palmer
EPA Region 10
1200 6th Avenue
Seattle, WA 98101

Re: EPA Draft Temperature Guidance for Pacific Northwest

Dear Mr. Palmer:

Thank you for the opportunity to comment on the second draft of "EPA Region 10 Guidance for Pacific Northwest State and Tribal Temperature Water Quality Standards." The City of Seattle is committed to protecting the quality of surface water in this region, and recognizes that maintaining and improving water quality conditions is essential to the recovery of the salmon, steelhead, and bull trout populations that inhabit our streams and rivers.

The City greatly appreciates the time and effort you have taken to obtain and address the comments and feedback on the guidance document from the public, stakeholder groups, Tribes, state and federal resource agencies, and water quality and fish experts. The City also compliments the EPA for a comprehensive technical review that includes the results of many recently-completed studies, for seeking additional information and inputs from local water quality experts and fish biologists, and for improving the draft guidance document based upon this review and consultation.

Preparing temperature guidance is not easy. Both water bodies and the biological characteristics of aquatic organisms, such as salmon and trout, are naturally variable. Temperature is a natural component of water bodies, and the determination of what the organisms require does not lend itself to easy answers. That problem leads to the comments the City has on this revised draft.

The City continues to stress the need for providing flexibility to the States and Tribes in setting water quality standards that make sense with respect to local water temperature characteristics, as well as to the unique life history traits and biological requirements of local salmon, steelhead, and bull trout populations. Many of the life history traits and biological requirements of salmon and bull trout described in the guidance document are based upon Columbia River Basin populations, and may not be applicable to populations in western Washington. Therefore, the EPA guidance and review of water quality standards should allow

states to construct standards and modify their application in a way that more accurately reflects the variety that is present in the state.

The guidance does not address lake waters as such, and EPA should either address lake criteria in a flexible manner or specifically acknowledge that states have leeway to do so. Lakes naturally tend to be warmer during the summer, especially at their surface. It is this surface layer that feeds the streams flowing from the lakes, which will tend to be warmer in the summer than a stream would otherwise be. It is possible that the temperature of lake surface water in low and mid-elevation lakes will naturally exceed the proposed standards at times during the summer and early fall, and the outlet streams may also exceed proposed standards. The same situation is created on a temporary basis with beaver ponds in stream complexes.

This does not necessarily mean that those waters are “marginal”. For example, relatively warm wetland and beaver pond complexes are highly productive rearing habitat for some salmonids, and fish often inhabit and thrive in streams that are warmer than the proposed optimum criteria. This is due, in part, to both the capacity of fish to seek out optimal microhabitats within a larger area of habitat, and a natural variation in the adaptations of fish. For example, although most bull trout live their entire lives in streams (i.e., are “fluvial”), there are “adfluvial” bull trout in Chester Morse Lake that spawn naturally at warmer temperatures in “low-elevation” streams and rivers just above the lake, thus choosing warmer waters than the proposed standard. Furthermore, many waters that exceed the proposed guidance are not “lower quality,” but simply vary with respect to temperature for reasons that have nothing to do with anthropogenic effects.

There needs to be a good way to account for these situations without necessarily establishing lower temperature criteria. Therefore the City asks that EPA embody these observations in the guidance or, in the alternative, indicate that EPA will favorably consider alternatives presented by states that address the demonstrated variation in conditions where organisms thrive.

Currently, Ecology standards allow that “whenever the natural condition of said waters are of a lower quality than the criteria assigned, the natural conditions shall constitute the water quality criteria” (WAC 173-201A-070(2)). Although in some cases Ecology has specifically identified the “natural conditions” of waters, it does not follow that they *must* universally be so identified in the state water quality standards. There may not be sufficient data available to determine exactly what the natural temperature is, although there is general agreement that it is higher than the criteria. As Ecology has pointed out in their comment letter, incremental loading can be managed fairly precisely without having to establish what the natural temperature is.

There also is the situation where streams are impacted due to pervasive and well established human use, especially in urban areas. Your guidance is unclear as to whether a TMDL or a UAA is the right approach in addressing these areas. It would be helpful if EPA could meet with Ecology to develop some clarity in how to address this issue.

Thank you for the opportunity to comment on this draft document. We have enclosed some additional technical comments pertaining to bull trout and juvenile salmonids.

Sincerely,

Sally Marquis
Director, Resource Planning
Seattle Public Utilities

enclosure

cc: Melissa Gildersleeve, Department of Ecology

Additional Comments Pertaining to Juvenile Salmonids and Bull Trout

- 1) *Chinook salmon have a different juvenile life history in western Washington that that described in the guidance document.* The life history of pattern described is correct for spring and summer chinook salmon in the Columbia River basin. However, chinook salmon in western Washington typically have an "ocean type" life history, remaining in fresh water after emerging as fry for a few weeks to a few months, and migrating to the estuary or ocean by early June. Consequently, most juvenile chinook will have migrated downstream out of the streams and rivers of western Washington prior to the warmest periods of the year (i.e., mid-July to mid-September).
- 2) *The guidance document needs to clearly define the term "juvenile" with respect to bull trout, and clearly differentiate juvenile rearing areas from migration areas.* The City recommends that "juvenile rearing areas" be defined as streams used for bull trout spawning, and for juvenile fish up to two years in age. The current use of the term "juvenile rearing" in the recommended criteria (Table 3) and elsewhere in the document is too broad, and may be interpreted by some to include the lowland migratory areas used by both juvenile and adult bull trout. As correctly described in the guidance document, juvenile bull trout will rear in their natal streams for 2 to 4 years, and then migrate to more productive feeding areas in larger rivers and lakes. Bull trout in the northern Puget Sound and Olympic Peninsula also have an anadromous life history form, migrating from headwater streams through larger rivers to estuary and marine nearshore areas. Bull trout in this region migrate in large numbers from headwater areas into lower rivers, estuaries, and marine nearshore areas at three and four years of age. These fish are still juveniles (i.e., sexually immature), but are commonly found in low elevation rivers and estuaries where water temperatures naturally exceed the proposed 12°C criteria for juvenile rearing. A recent radiotagging study found juvenile bull trout to migrate downstream through the lower Snohomish River during the spring, through the marine nearshore areas of the Puget Sound during the summer, and finally into the upper Skagit River basin in the late summer and fall. We recommend that you contact Curt Kraemer at Washington Dept. of Fish and Wildlife (Mill Creek) or Jeff Chan with the US Fish and Wildlife Service (Olympia) regarding the most recent information on the life history and migratory traits of bull trout in the Puget Sound region.
- 3) *The distinction between "core juvenile rearing", "juvenile rearing", and "juvenile/adult migration" as defined in the recommended temperature criteria is confusing.* The City recommends the development of specific and clearly understood definitions for "core juvenile rearing", "juvenile rearing", "juvenile migration", and "adult migration" areas for salmon and trout. The City realizes that the location of juvenile rearing, juvenile migration, and adult migration habitat varies considerably from basin to basin, and that these

habitats can overlap each other. However, the current definitions employed in the recommended criteria are too vague and are therefore subject to misinterpretation.

- 4) *The time period for applying the bull trout spawning criteria will be difficult to determine, since the spawning period of this species varies considerably from place to place, and from year to year.* The spawning "use" period for bull trout proposed in Table 4, i.e., "average date spawning begins", will be difficult to determine because the spawning timing of bull trout is highly variable over space and over time. Bull trout typically commence spawning when temperatures fall below 9°C, and this can occur earlier or later in the year based upon elevation, streamflow, and weather conditions among other factors. Within a given watershed, bull trout spawning may commence as early as mid -August in higher elevation streams with good adult holding habitat (i.e., deep pools fed by groundwater), to late November in lower elevation rivers. The City recommends dropping the spawning criteria because of the high degree of variability in the spawning timing of bull trout.

Owyhee County Natural Resources Committee

*c/o James B.Desmond, Director
PO Box 38, Murphy, ID 83650
208-495-2185 OCNRCDIR@aol.com*



November 26, 2002

Mr. John Palmer
EPA Region 10
1200 6th Avenue
Seattle WA 98101

Re: Owyhee County, Idaho comment on the Second draft of Regional Water Temperature Guidance

This document will be transmitted by electronic mail to palmer.john@epa.gov

Dear Mr. Palmer:

This document contains the comment of Owyhee County, Idaho on the Second Draft of Regional Water Temperature Guidance (hereafter referred to as “the Draft”). This comment is authorized by action of the Owyhee County Board of County Commissioners and they have designated James B. Desmond, Owyhee County Natural Resources Committee Director, as their point of contact for this action.

The county appreciates the EPA’s careful review of the comments received in response to the first draft of the proposed standards and appreciates the work that went into the creation of the second draft. While we appreciate the effort involved, we still retain concerns about the proposal as put forth in the Draft. The following comments address the concerns identified by the county based upon our determination of the potential adverse affect the Draft might eventually create for the viability of the economic interests within our county and the potential adverse affect on the county’s economic base that could result from application of the provisions of the Draft.

Comments:

1. On page two of the three-page information paper that accompanied the Draft, EPA indicates that, of the public comments received on the first draft, some commenters indicated that they believed the temperatures were too cold and unattainable, while others thought they were too warm and not protective enough. We believe that the degree of disagreement expressed in the two opposing views is an indication of the great diversity found within streams in the large area described as the “Pacific Northwest” and indicates a fatal flaw in the philosophy of the Draft.

- We believe that EPA should narrow the geographic area of consideration in order to establish standards that are appropriate for local conditions rather than attempting to establish standards for the “Pacific Northwest.” By example, we point out that there is great diversity in temperature to be found in July or August when recording temperature on the Nisqually river flowing through Fort Lewis Military Reservation south of Tacoma, WA and on the Owyhee River in Southwestern Idaho. Summer temperatures in the high desert areas of the Owyhee country routinely exceed 100 degrees F while on the Nisqually we would expect to find them 20 degrees cooler. Streamside vegetation in the Owyhee river area is significantly affected by the combination of low annual precipitation and short periods of intense rainfall events. The flashy nature of the Owyhee country streams tend to scour the streamside vegetation annually to a degree that would be seen on the Nisqually only as result of a major flood event. In addition, the amount of rainfall found along the Nisqually would provide for the rapid reestablishment of the streamside vegetation that was lost, while the arid nature of the Owyhee country would make vegetation establishment very difficult. It should also be noted that despite the high temperatures found on stream segments within Owyhee County, Idaho DEQ found, during data collection for the Upper Owyhee TMDL, Red Band Trout in all age classes on all but two streams in the watershed. Yet the Draft proposes to establish standard temperature guidelines for the very diverse river and stream segments within this large geographic area and EPA intends to use those guidelines to determine the adequacy of the standards that may be submitted by the various states. We believe this approach will not produce any beneficial effect toward improvement of the nation’s waters as mandated under the CWA and is sure to cause unnecessary expense and economic harm as states are forced to apply the standard across such a diverse landscape.
2. Item number 6 on the third page of the information paper indicates that the writers of the Draft added a section describing options under the CWA that a state or tribe could pursue if the recommended numeric criteria are inappropriate or unattainable. As pointed out above, Idaho DEQ already has evidence that the temperature standards set for stream segments in Owyhee County exceed the standard, yet the Red Band Trout are spawning. The Draft indicates that the burden falls upon the state to prove its case, when it proposes to change the current standard, through completion of use attainability analysis. We contend that EPA should take a more active and responsive role with respect to temperature variation by locale. By addressing the temperature variation existing across the region, and allowing for such variation within the Guidelines, EPA can and should remove the burden of the staff cost and expense that would be required for individual states to complete use attainability analysis and then convince the reviewing EPA authority that its work is sufficient for a temperature change.
 3. Page 1 of the Draft indicates that the states “may” use the document to adopt water quality standards for their state. It also indicates that the proposal is “not a regulation.” However, the language that is most significant on page one is the last sentence of the second paragraph where EPA imparts what may amount to a form of bureaucratic blackmail of the states by indicating that, “However, States and Tribes that adopt temperature WQS consistent with this guidance can expect an

- expedited review by EPA and the Services.” The message is obviously intended to force the state to accept the EPA Guideline, and save staff time and resources, rather than fight for temperature standards that are more appropriate to the state’s rivers and fish populations. If the document were modified to ensure that the variation in temperature across the Pacific Northwest was accurately identified and addressed within the document and assurances were made that a “Nisqually solution” was not going to be forced on an Owyhee river tributary, then that phrase would be comforting assurance of an expedited review. As the document now exists, however, it seems to be a clear indication that states must adopt the recommended standard or be prepared for a difficult and expensive review process.
4. On page 1 of the Draft, paragraph 1 names the specific species for which the guidance has been developed and to which species the guidance is to be applied. Yet in paragraph three of the same page, the document states that the “guidance reflects the most recent scientific information on temperature tolerances for Pacific Northwest salmonids species...” The use of “Pacific Northwest salmonids species” inappropriately expands the application of the guidelines to species not named. The Draft should be corrected, throughout the document, so that it carefully refers only to those species for which the document was developed and does not incorrectly incorporate, by such general references, any other species.
 5. Page 8 of the Draft cites elements of the Interior Columbia Basin Ecosystem Management Project as stating, “In desert climates, the loss of riparian canopy has been associated with excessive water temperatures and reduced redband trout population. Owyhee County disputes that statement as it is applied to streams within this county. As previously indicated in this comment, the flashy nature of riparian systems in this county significantly reduce the quantity and quality of streamside vegetation. Furthermore, hot summer temperatures and the additive effect of many thermal springs feeding stream segments produce raised temperatures. That is the nature of streams in this high desert country. Despite the higher than standard temperatures however, Red Band Trout were found to be present, in all age classes, in nearly all of the North Fork of the Owyhee watershed streams when Idaho DEQ gathered data for a TMDL.

Application of the temperature guidance proposed within this Draft across the river systems found within Owyhee County Idaho will result in the listing of streams segments for temperature despite the attainment of the salmonid spawning beneficial use. Such listing will cause the development of TMDL’s and subsequent implementation plans that will prompt the application of management practices intended to “improve” streams to a standard that is not their natural temperature state. Such action will cause unnecessary harm to the economic interests that make use of the waters within the county or the lands upon which these management practices will be carried out. The management actions will not achieve the goals of the CWA, but will do significant harm to the economy and economic base of the County.

In summary, the Draft, as currently presented, is fatally flawed as it attempts to establish uniform temperature standards across such a diverse and un-uniform geographic region.

The county does not support the current version of the Draft for its failure to recognize this diversity through a program that is more receptive to the state's development of standards that meet the specific conditions and needs of their states.

Sincerely,

//signed//

James B. Desmond

On behalf of the biologists and water quality types over here in King County government, Betsy Cooper of the Wastewater Treatment Division and I want to say how pleased we were with the changes between the first draft of the guidance and the second. While thermal potential modelling is an interesting idea, and one that may lend itself to temperature TMDL's, it really seemed like a bad idea as a requirement for setting temperature standards throughout the region because of the expense and complexity of the task. The structure of the new guidance makes a lot more sense for implementation.

However, having said that, there remain devilish details. We have read Ecology's thoughtful comments on your 2nd draft (as well as the draft itself) and find that they raise valid issues that concern us as well. Please consider Ecology's comments, questions, and suggestions as seconded by us. We look forward to Version 3.0.

Luanne Coachman, Coordinator
King County NPDES Municipal Stormwater Permit Program
Water and Land Resources Division
201 S. Jackson St., Suite 600
Seattle, WA 98104-3855
desk: 206-296-8381
fax: 206-296-0192
Luanne.Coachman@metrokc.gov

November 26, 2002

John Palmer
EPA Region 10
1200 6th Avenue
Seattle, WA 98101
palmer.john@epa.gov

RE: Draft EPA Region 10 Guidance for Pacific Northwest State and Tribal
Temperature Water Quality Standards

Dear Mr. Palmer:

The Wallowa County Board of Commissioners has been implementing an effort in Wallowa County, Oregon to help recover the endangered salmonids since 1992. A broad based group of local experts developed the Wallowa County/Nez Perce Tribe Salmon Recovery Plan in 1992/93 to aid in the coordination of the local voluntary efforts.

We have reviewed the October 10, 2002 Public Review Draft of the above standards and have the some concerns, comments, and suggestions.

On pages 11 - 13 the use of the terminology "human - caused elevated temperatures" is used 14 times. The use of this terminology would suggest that the salmonids only have a problem with human caused elevated temperatures and that those temperatures that are naturally high present no problem to the salmonids. I assume that "human caused elevated temperatures" was used to present a situation that we might have some control over.

Using a seven - day running average of daily maximum temperatures (Tables 3 and 4) without establishing a time - dependent maximum temperature for short exposures is using incomplete information for establishing recommended criteria according to the National Academies of Sciences and Engineering report to EPA in 1972 and Issue Paper 3 - Spatial and Temporal Patterns of Stream Temperature. The use of Eco-System and Diagnosis and Treatment methodology could establish historical critical reaches for different species and life stages and then that could be used to develop more meaningful water temperature targets.

The "natural background" provisions allow for deviation above the listed standards with the use of a narrative when the waters exceed the numeric criteria and human impacts are negligible. We support allowing such deviations since we have several instances in Wallowa County where we could use such narrative

explanations. Examples: we have streams with measured temperatures at 57F in the wilderness and are considered by ODFW Fish Biologists to contain healthily, self-sustaining Bull Trout populations. Similarly, the Imnaha River in Wallowa County has measured temperatures that exceed 68F in its lower reaches near the Snake River and yet the Chinook Salmon recovery on the Imnaha is deemed a success story by the Nez Perce Tribe.

The statement that to follow a Use Attainable Analysis (UAA) approach that supports a marginal or limited use that the overall watershed context must be completed showing where within the watershed EPA's fully protective criteria can be met assumes that EPA's criteria is correct. Site-specific evaluation of the watershed to determine the conditions available and needed for salmonids, rather than hard temperature standards is the correct method to use in salmonid recovery and Water Quality Standards.

Sincerely,

Wallowa County Natural Resource Advisory Committee